

Appendices

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Note: Appendices 2 and 4 contain their own Supplemental Information Table of Contents.

Appendix 1: Medicaid Trending for Cycle-Specific and National Rolling Error Rates

Table A1. Inception to Date Cycle-Specific Medicaid Improper Payment Component Error Rates

Year	FFS	Managed Care	Eligibility	Overall*
2007	4.7%			
2008	8.9%	3.1%	2.9%	10.5%
2009	2.6%	0.1%	6.7%	8.7%
2010	1.9%	0.1%	7.6%	9.0%
2011	3.6%	0.5%	4.0%	6.7%
2012	3.3%	0.3%	3.3%	5.8%
2013	3.4%	0.2%	3.3%	5.7%

*The overall estimate is comprised of the weighted sum of the FFS and managed care components, plus the eligibility component, minus a small adjustment to account for the overlap between the claims and eligibility review functions.

Table A2. National Rolling Medicaid Improper Payment Component Error Rates

Year	FFS	Managed Care	Eligibility	Overall*
2010 Rolling Rates	4.4%	1.0%	5.9%	9.4%
2011 Rolling Rates	2.7%	0.3%	6.0%	8.1%
2012 Rolling Rates	3.0%	0.3%	4.9%	7.1%
2013 Rolling Rates	3.6%	0.3%	3.3%	5.8%

*The overall estimate is comprised of the weighted sum of the FFS and managed care components, plus the eligibility component, minus a small adjustment to account for the overlap between the claims and eligibility review functions.

Appendix 2: Medicaid Supplemental Information

CMS reported a rolling error rate for Medicaid in 2013 based on the 51 states reviewed from 2011-2013. Unless otherwise noted, all tables and figures in Appendix 2 are based on the rolling rate.

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Medicaid Overpayments and Underpayments

Table S1. Summary of Projected Medicaid Overpayments and Underpayments

Category	Overpayments		Underpayments	
	Number of Sample Payment Errors	Projected Dollars in Errors (\$millions)	Number of Sample Payment Errors	Projected Dollars in Errors (\$millions)
FFS Medical Review	746	\$7,554.3	23	\$69.6
FFS Data Processing	258	\$2,985.3	76	\$475.2
Managed Care	46	\$384.8	62	\$6.7
Eligibility	1,039	\$13,775.7	44	\$247.3
Total	2,089	\$24,700.1	205	\$798.8

Note: Details do not always sum to the total due to rounding.

Medicaid FFS Component Payment Error Rate

Figure S1. Medicaid FFS Cycle-Specific Payment Error Rates for 2007 - 2013

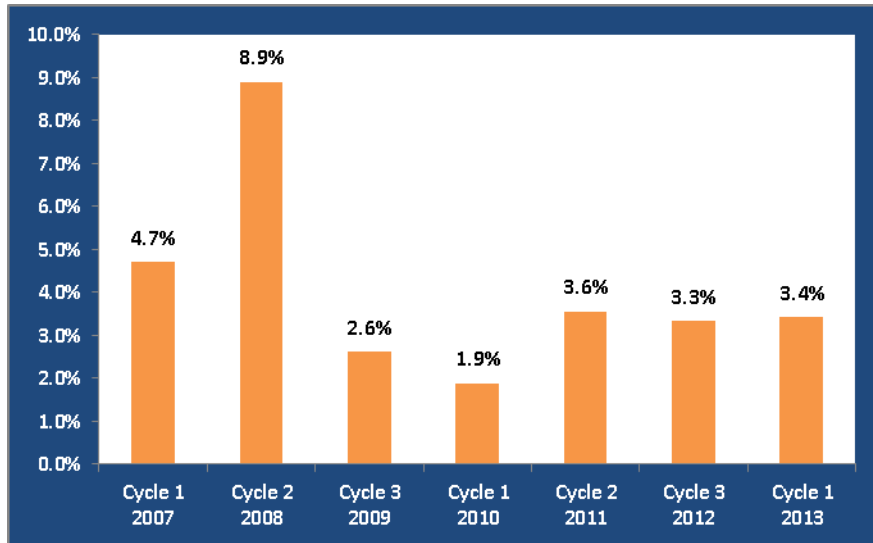


Table S2. Medicaid FFS Medical Review and Data Processing Payment Error Rates by State

State	Medical Review			Data Processing			Sample Paid Amount	Overall Error Rate
	Number of Sample Errors	Sample Dollars in Error	Error Rate	Number of Sample Errors	Sample Dollars in Error	Error Rate		
National	769	\$1,942,031	2.5%	334	\$1,332,329	1.1%	\$680,800,141	3.6%
ST1	88	\$665,439	15.4%	21	\$17,466	2.4%	\$2,183,371	17.7%
ST2	17	\$9,878	16.5%	0	\$0	0.0%	\$341,268	16.5%
ST3	29	\$105,748	7.8%	22	\$21,338	7.2%	\$3,972,915	13.2%
ST4	23	\$32,176	8.1%	12	\$864,302	2.2%	\$50,822,755	10.3%
ST5	16	\$6,566	5.4%	25	\$22,523	4.8%	\$259,271	10.2%
ST6	17	\$8,075	8.2%	9	\$856	1.0%	\$215,433	9.2%
ST7	11	\$4,419	5.4%	6	\$6,692	4.9%	\$305,068	7.7%
ST8	10	\$448	1.8%	8	\$694	5.1%	\$66,243	6.9%
ST9	43	\$44,530	6.2%	5	\$330	0.6%	\$1,414,552	6.8%
ST10	34	\$105,989	6.7%	1	\$1,209	0.0%	\$1,185,315	6.8%
ST11	31	\$75,356	4.0%	14	\$18,611	2.3%	\$4,085,438	6.1%
ST12	10	\$54,003	5.0%	5	\$40,430	1.1%	\$1,442,647	6.0%
ST13	19	\$37,699	5.2%	2	\$4	0.0%	\$1,045,615	5.2%
ST14	32	\$70,268	3.6%	12	\$19,315	0.9%	\$3,383,685	4.5%
ST15	18	\$21,849	4.1%	4	\$87	0.3%	\$434,397	4.4%
ST16	30	\$47,328	4.0%	8	\$2,475	0.3%	\$1,286,522	4.2%
ST17	7	\$10,201	1.4%	2	\$191	2.7%	\$2,659,057	4.1%
ST18	27	\$29,857	3.4%	10	\$2,240	0.6%	\$1,646,296	4.1%
ST19	6	\$5,326	4.0%	3	\$150	0.0%	\$1,065,956	4.0%
ST20	4	\$12,151	1.9%	28	\$7,701	2.1%	\$239,444	4.0%
ST21	12	\$22,889	3.1%	4	\$645	0.8%	\$1,305,910	3.9%
ST22	9	\$9,798	2.1%	8	\$394	1.8%	\$200,417	3.7%
ST23	0	\$0	0.0%	9	\$201,416	3.4%	\$4,192,526	3.4%
ST24	16	\$13,839	3.4%	0	\$0	0.0%	\$1,228,699	3.4%
ST25	20	\$36,583	3.2%	0	\$0	0.0%	\$1,346,874	3.2%
ST26	18	\$36,727	2.9%	12	\$3,709	0.1%	\$4,067,344	3.0%
ST27	6	\$19,968	1.2%	13	\$30,240	1.6%	\$1,580,596	2.8%
ST28	7	\$11,028	2.7%	1	\$4	0.0%	\$721,079	2.7%
ST29	21	\$148,509	2.4%	5	\$21,144	0.1%	\$3,035,760	2.4%
ST30	4	\$7,316	2.3%	0	\$0	0.0%	\$337,425	2.3%
ST31	15	\$67,296	2.1%	3	\$2,079	0.4%	\$2,180,743	2.3%
ST32	4	\$523	2.0%	1	\$58	0.3%	\$280,557	2.2%
ST33	8	\$797	1.7%	4	\$172	0.4%	\$554,588,854	2.1%
ST34	15	\$48,044	1.9%	2	\$5,789	0.2%	\$1,845,901	2.1%
ST35	12	\$22,179	2.0%	1	\$2	0.0%	\$3,040,771	2.0%
ST36	11	\$2,833	1.7%	13	\$415	0.3%	\$343,382	2.0%
ST37	26	\$18,824	1.5%	11	\$525	0.4%	\$918,310	1.8%
ST38	9	\$19,682	1.1%	5	\$9,387	0.6%	\$3,722,855	1.8%
ST39	15	\$18,958	1.6%	3	\$102	0.1%	\$3,441,314	1.7%
ST40	8	\$9,115	1.7%	2	\$38	0.7%	\$2,277,035	1.7%
ST41	8	\$4,473	1.2%	10	\$10,076	0.6%	\$2,599,175	1.7%
ST42	11	\$12,119	1.5%	3	\$0	0.0%	\$1,132,353	1.5%
ST43	9	\$22,412	1.4%	4	\$16,312	0.7%	\$792,891	1.5%
ST44	7	\$7,458	1.4%	0	\$0	0.0%	\$475,998	1.4%

State	Medical Review			Data Processing			Sample Paid Amount	Overall Error Rate
	Number of Sample Errors	Sample Dollars in Error	Error Rate	Number of Sample Errors	Sample Dollars in Error	Error Rate		
ST45	5	\$610	1.4%	1	\$1,564	0.0%	\$1,003,422	1.4%
ST46	4	\$13,088	1.2%	2	\$363	0.1%	\$2,506,197	1.2%
ST47	4	\$6,944	0.6%	14	\$1,230	0.3%	\$628,397	0.9%
ST48	6	\$6,605	0.8%	1	\$3	0.0%	\$1,919,593	0.8%
ST49	1	\$43	0.5%	2	\$7	0.1%	\$323,485	0.6%
ST50	5	\$5,770	0.4%	3	\$41	0.0%	\$512,036	0.4%
ST51	1	\$294	0.3%	0	\$0	0.0%	\$194,993	0.3%

Medicaid FFS Payment Errors by Type of Error

Figure S2. Medicaid FFS Highest Total Dollar Error Types

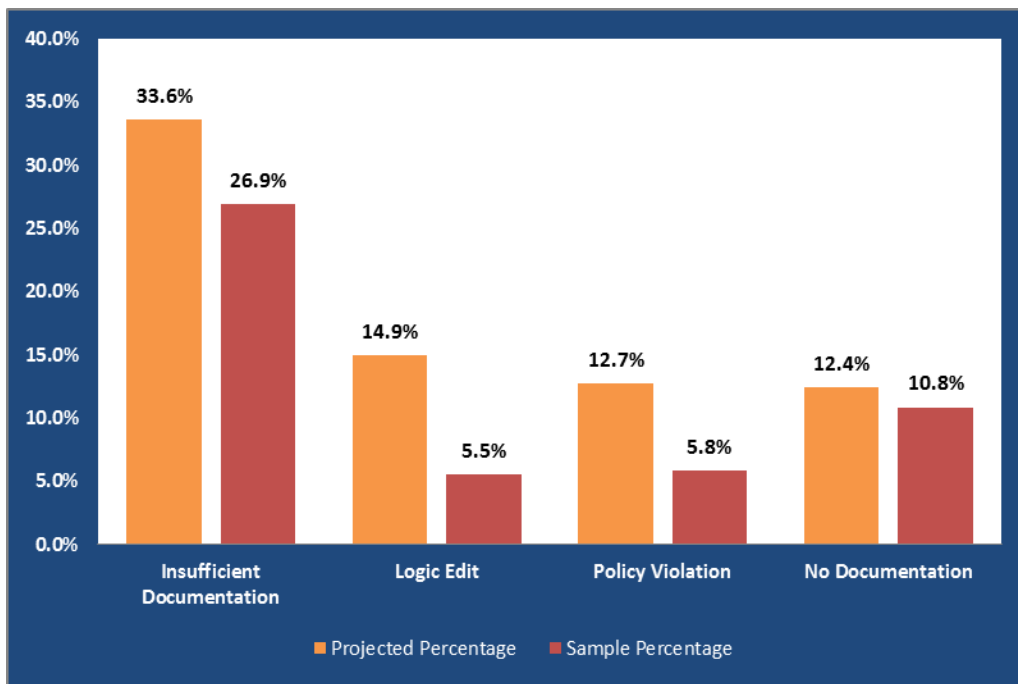
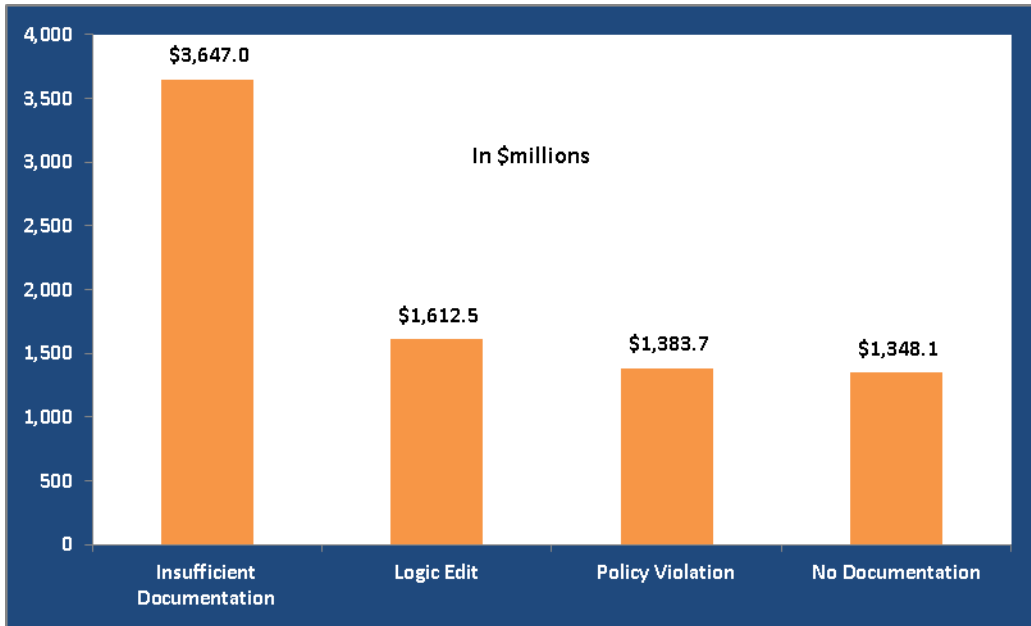


Figure S3. Medicaid FFS Projected Dollar Amounts of Highest Total Dollar Error Types



Medicaid FFS Medical Review Payment Errors

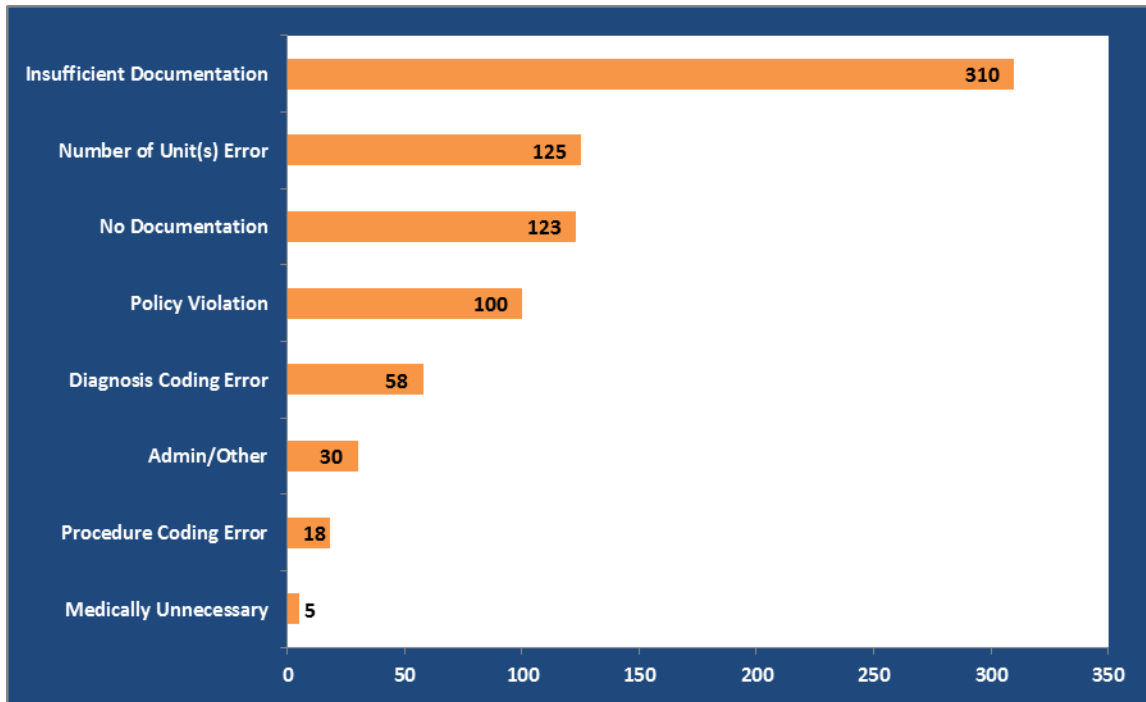
Table S3. Number and Projected Dollar Amount Medicaid FFS Medical Review Errors

Error Type	Overpayments		Underpayments		Percentage of Total Errors		Average Projected Cost per Error
	Number of Sample Errors	Projected Dollars in Error (\$millions)	Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Total Number of Sample Errors	% of Projected Dollars in Error	
Insufficient Documentation	310	\$3,647.0	0	\$0.0	40.3%	47.8%	\$165.06
Policy Violation	100	\$1,383.9	0	\$0.0	13.0%	18.2%	\$140.65
No Documentation	123	\$1,348.1	0	\$0.0	16.0%	17.7%	\$150.99
Admin/Other	30	\$442.9	0	\$0.0	3.9%	5.8%	\$92.45
Number of Unit(s) Error	125	\$420.8	0	\$0.0	16.3%	5.5%	\$67.79
Diagnosis Coding Error	39	\$211.8	19	\$65.9	7.5%	3.6%	\$3,474.93
Procedure Coding Error	14	\$87.6	4	\$3.7	2.3%	1.2%	\$59.22
Medically Unnecessary	5	\$12.5	0	\$0.0	0.7%	0.2%	\$968.88
Unbundling	0	\$0.0	0	\$0.0	0.0%	0.0%	\$0.00

Error Type	Overpayments		Underpayments		Percentage of Total Errors		Average Projected Cost per Error
	Number of Sample Errors	Projected Dollars in Error (\$millions)	Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Total Number of Sample Errors	% of Projected Dollars in Error	
Total	746	\$7,554.5	23	\$69.6	100.0%	100.0%	\$0.00

Note: Details do not always sum to the total due to rounding.

Figure S4. Medicaid FFS Medical Review Number of Sample Errors



Medical Review Errors by Projected Dollars in Error

Figure S5. Medicaid FFS Projected Dollar Amount of Medical Review Errors

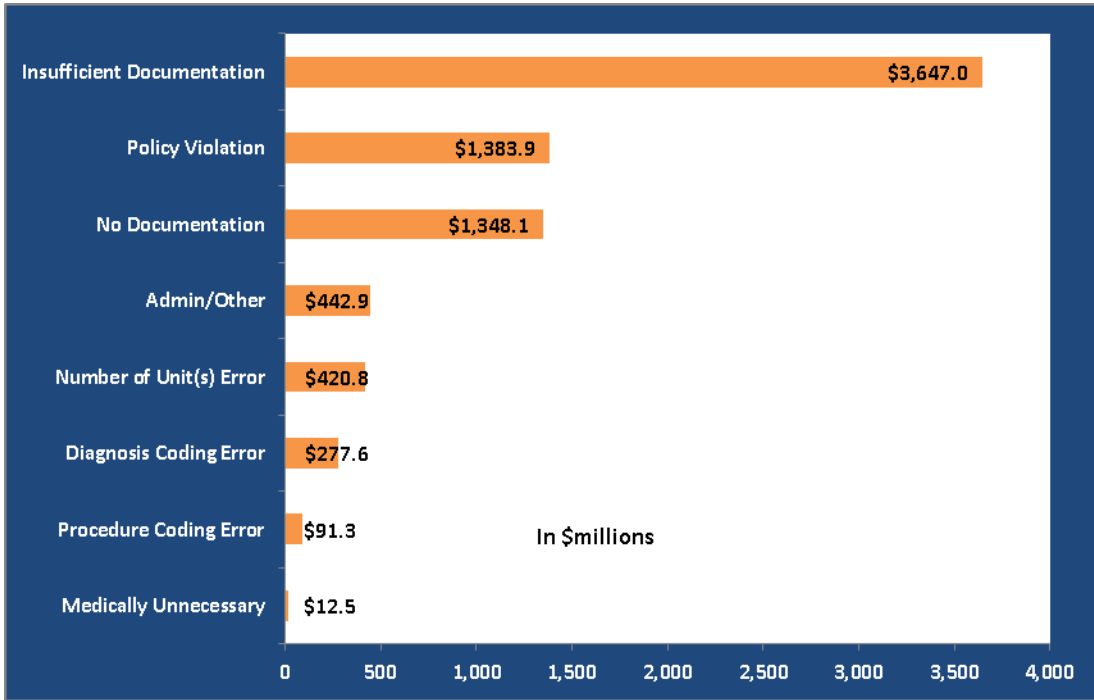
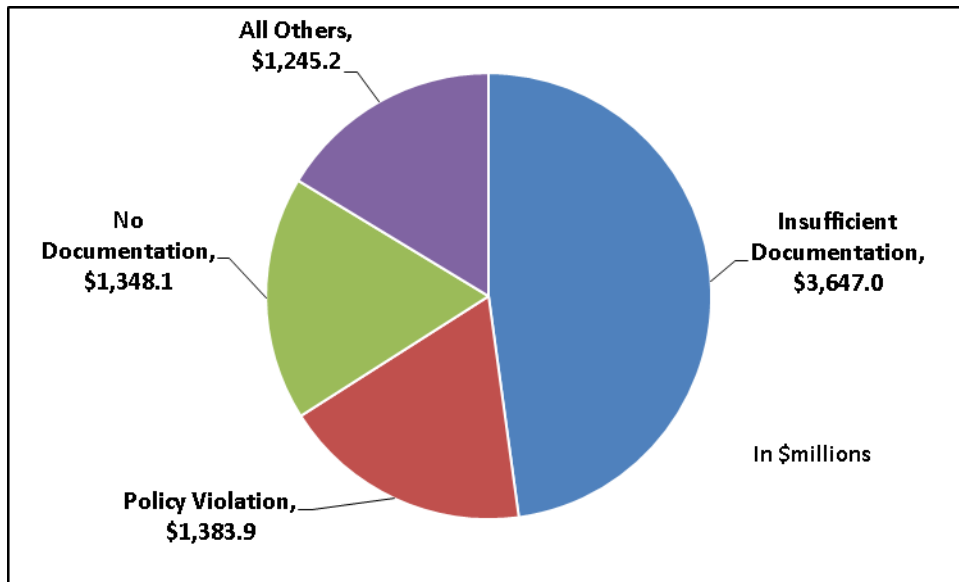
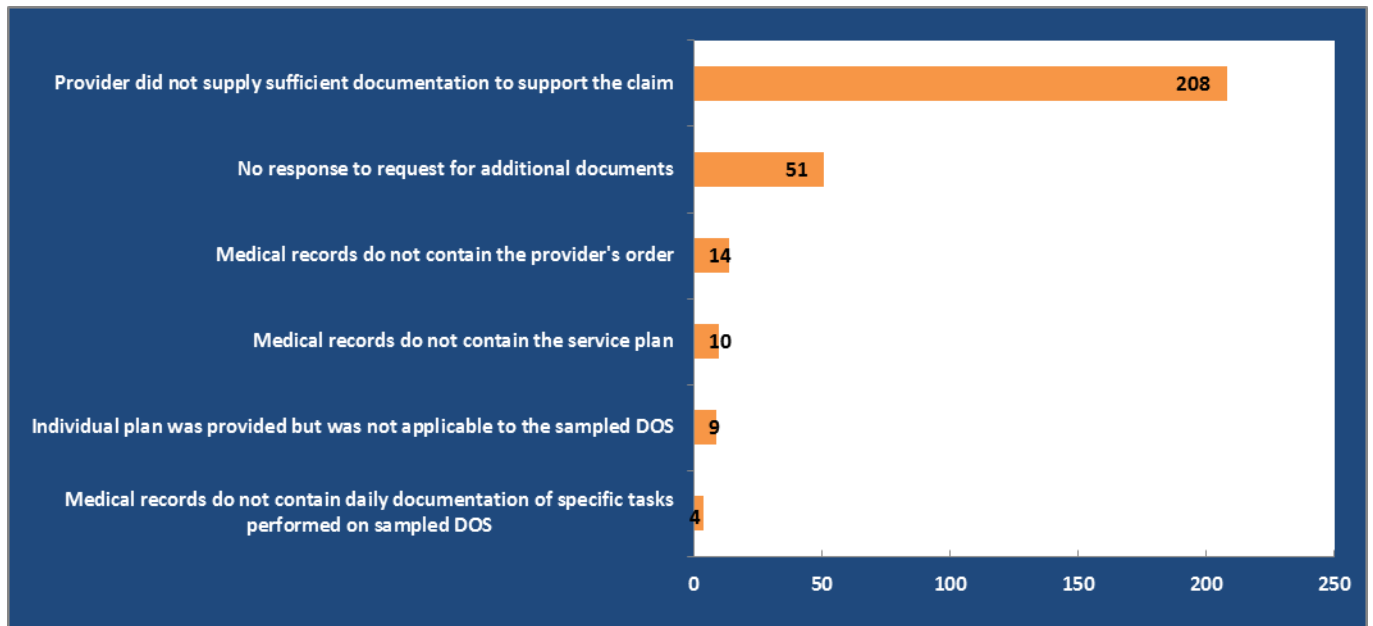


Figure S6. Medicaid FFS Error Types with the Highest Projected Dollar Amount of Medical Review Errors



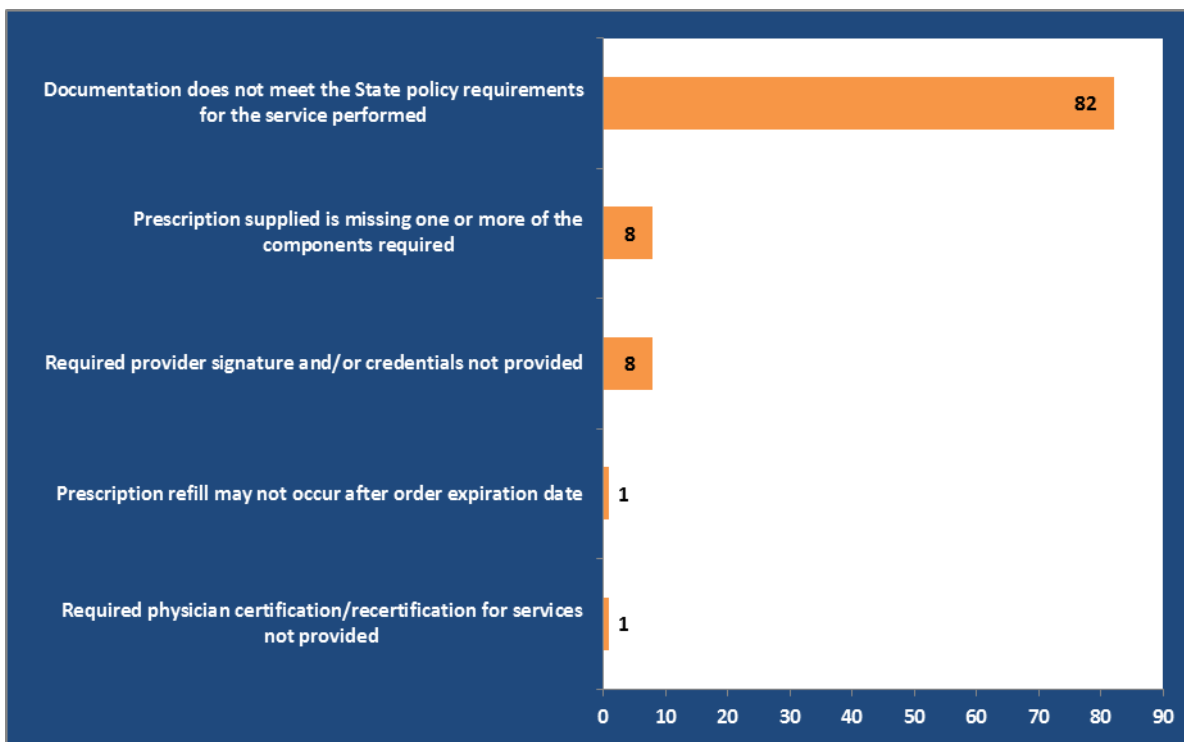
Medicaid FFS Insufficient Documentation

Figure S7. Common Causes of Medicaid FFS "Insufficient Documentation" Sample Errors



Medicaid FFS Policy Violation

Figure S8. Common Causes of Medicaid FFS "Policy Violation" Sample Errors



Medicaid FFS No Documentation

Figure S9. Common Causes of Medicaid FFS "No Documentation" Sample Errors

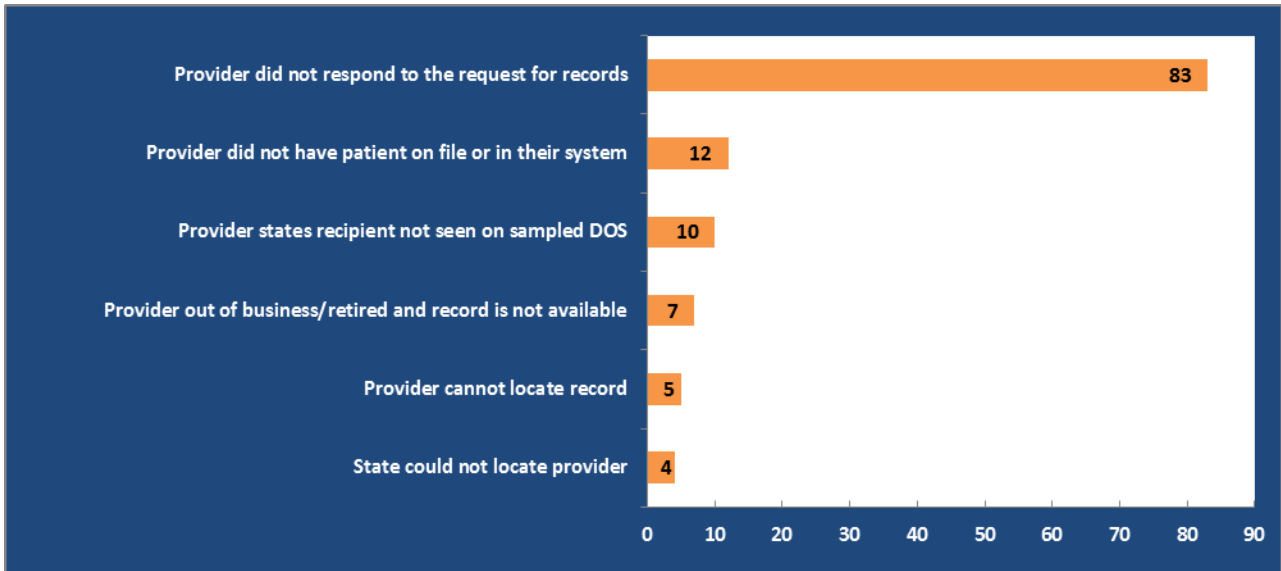
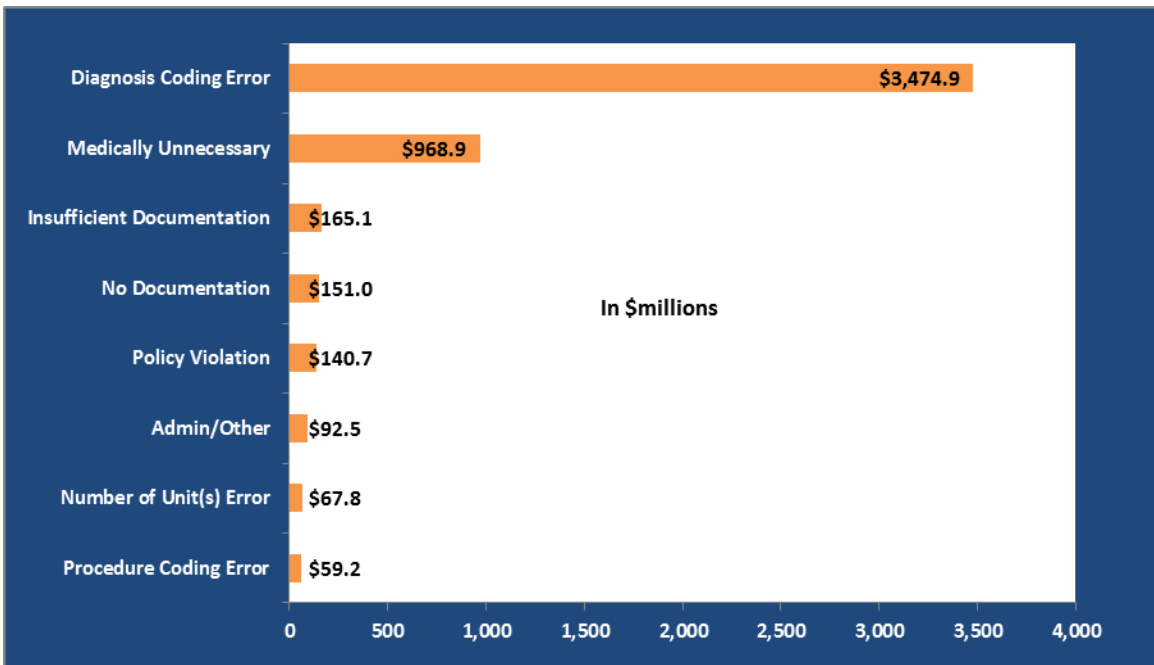


Figure S10. Medicaid FFS Medical Review Errors with the Highest Average Projected Cost Per Error



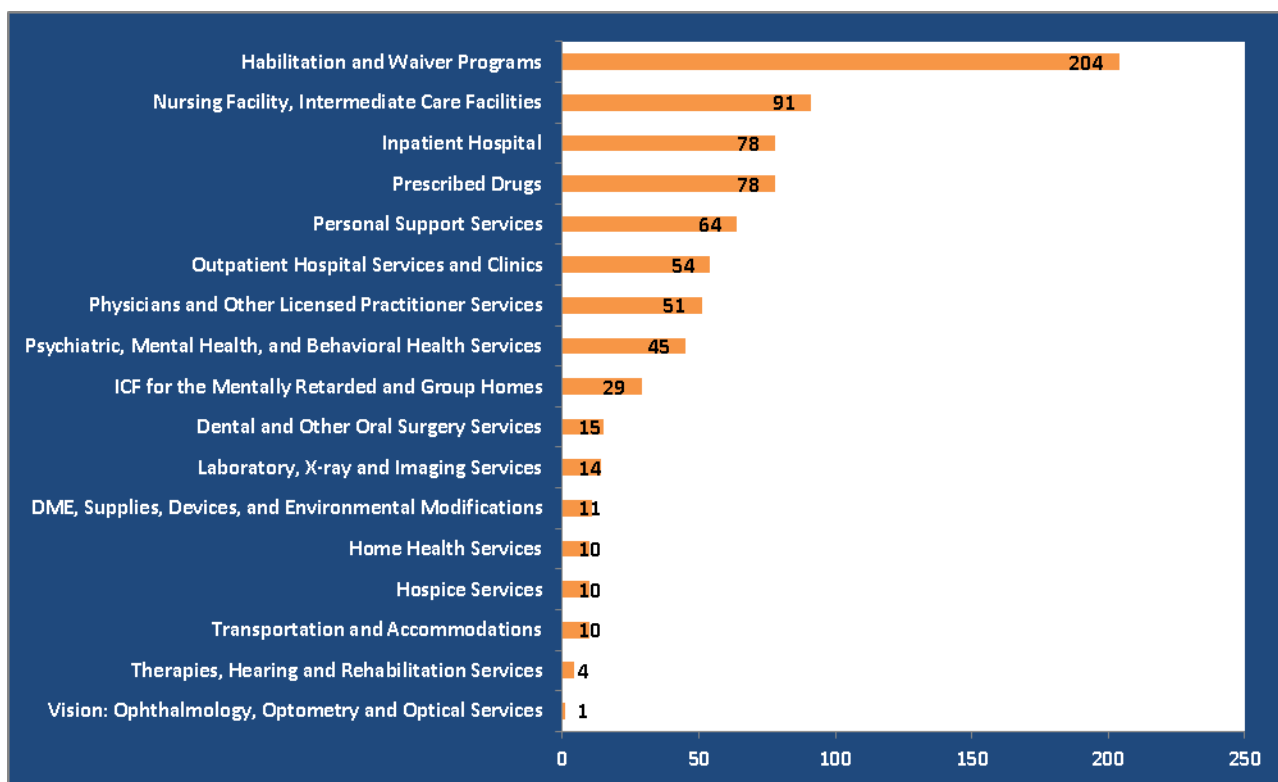
Medicaid FFS Medical Review Errors by Service Type

Table S4. Number and Projected Dollar Amount of Medicaid FFS Medical Review Errors

Service Type	Number of Sample Payment Errors		Projected Dollars in Error		Average Projected Cost per Error
	Number of Sample Payment Errors	% of Total Number of Errors	Projected Dollars in Error (\$millions)	% of Projected Dollars in Error	
Habilitation and Waiver Programs	204	26.5%	\$2,114.1	27.7%	\$222.49
Nursing Facility, Intermediate Care Facilities	91	11.8%	\$1,162.2	15.2%	\$2,891.23
Prescribed Drugs	78	10.1%	\$1,046.3	13.7%	\$85.49
Personal Support Services	64	8.3%	\$665.4	8.7%	\$129.60
ICF for the Mentally Retarded and Group Homes	29	3.8%	\$518.1	6.8%	\$1,513.33
Outpatient Hospital Services and Clinics	54	7.0%	\$492.2	6.5%	\$136.08
Physicians and Other Licensed Practitioner Services	51	6.6%	\$357.2	4.7%	\$66.86
Inpatient Hospital	78	10.1%	\$324.8	4.3%	\$3,126.74
Psychiatric, Mental Health, and Behavioral Health Services	45	5.9%	\$250.7	3.3%	\$108.42
Home Health Services	10	1.3%	\$188.7	2.5%	\$57.63
Durable Medical Equipment (DME) and supplies, Prosthetic/Orthopedic devices	11	1.4%	\$116.1	1.5%	\$45.12
Transportation and Accommodations	10	1.3%	\$97.4	1.3%	\$22.28
Dental and Other Oral Surgery Services	15	2.0%	\$78.7	1.0%	\$162.37
Therapies, Hearing and Rehabilitation Services	4	0.5%	\$73.3	1.0%	\$79.23
Hospice Services	10	1.3%	\$60.1	0.8%	\$2,497.48
Laboratory, X-ray and Imaging Services	14	1.8%	\$58.7	0.8%	\$23.18
Vision: Ophthalmology, Optometry and Optical Services	1	0.1%	\$19.9	0.3%	\$63.48
Total	769	100.0%	\$7,624.1	100.0%	

Note: Details do not always sum to the total due to rounding.

Figure S11. Medicaid FFS Number of Medical Review Errors by Service Type



Note: zero counts are currently not shown in the graph.

Figure S12. Medicaid FFS Projected Dollar Amount of Medical Review Errors by Service Type

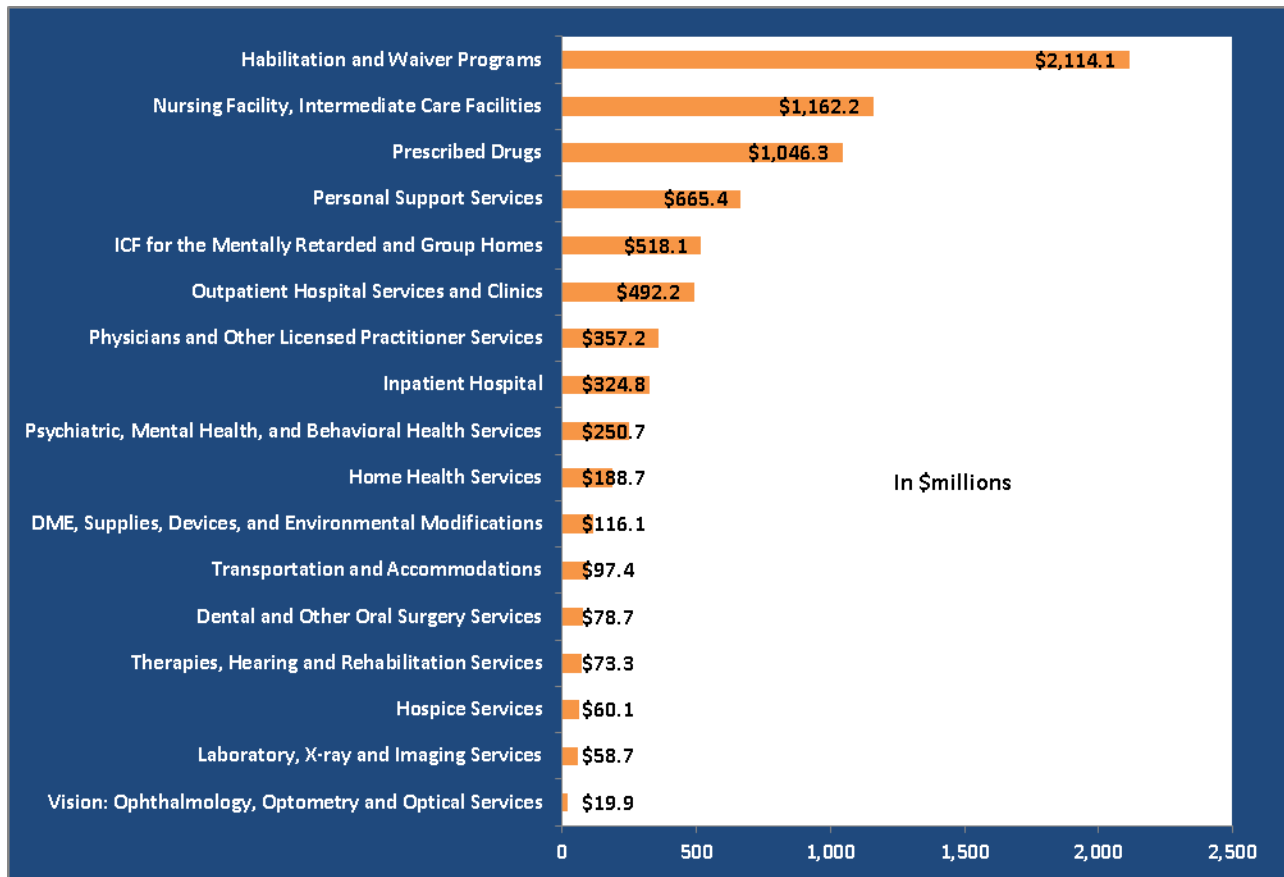
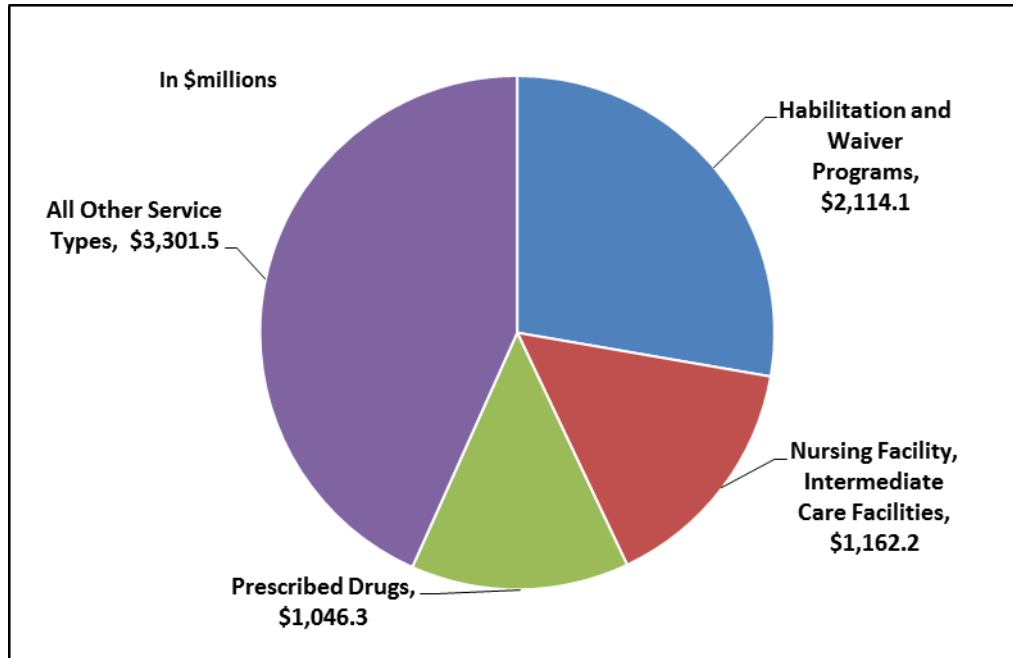


Figure S13. Medicaid FFS Service Types with the Highest Projected Dollar Amount of Medical Review Errors



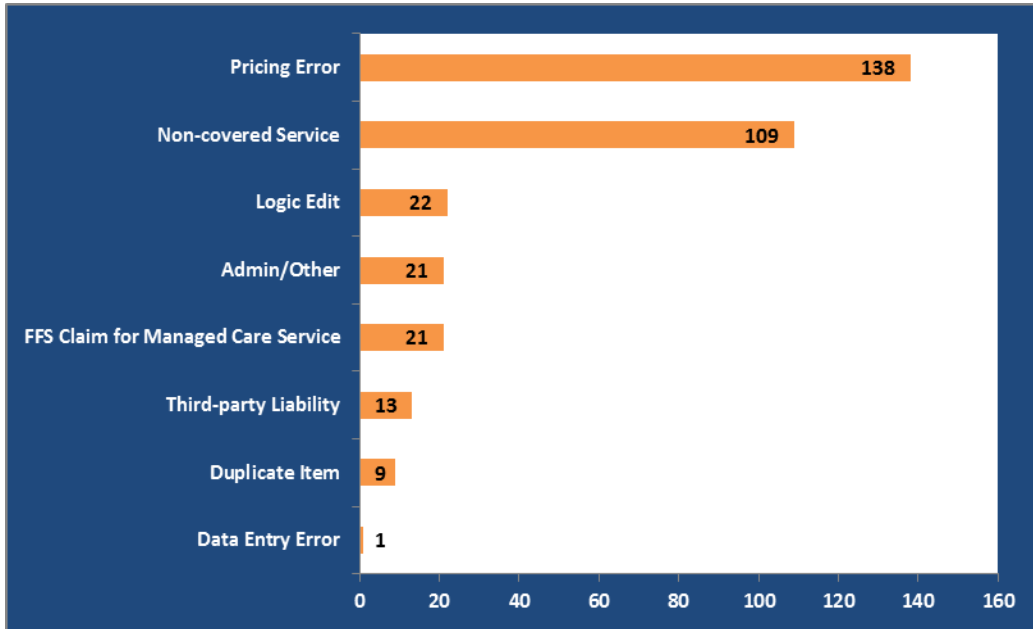
Medicaid FFS Data Processing Payment Errors

Table S5. Number and Projected Dollar Amount of Medicaid FFS Data Processing Errors

Error Type	Overpayments		Underpayments		Percentage of Total Errors		Average Projected Cost per Error
	Number of Sample Errors	Projected Dollars in Error (\$millions)	Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Sample Number of Errors	% of Projected Dollars in Error	
Logic Edit	20	\$1,231.0	2	\$400.1	6.6%	47.1%	\$157.36
Non-covered Service	107	\$907.1	2	\$15.9	32.6%	26.7%	\$112.61
Pricing Error	69	\$320.5	69	\$54.0	41.3%	10.8%	\$47.96
Admin/Other	21	\$235.1	0	\$0.0	6.3%	6.8%	\$68.66
FFS Claim for Managed Care Service	21	\$152.2	0	\$0.0	6.3%	4.4%	\$66.38
Third-party Liability	11	\$119.9	2	\$4.8	3.9%	3.6%	\$238.26
Duplicate Item	9	\$19.4	0	\$0.0	2.7%	0.6%	\$22.38
Data Entry Error	0	\$0.0	1	\$0.4	0.3%	0.0%	\$373.63
Total	258	\$2,985.3	76	\$475.2	100.0%	100.0%	

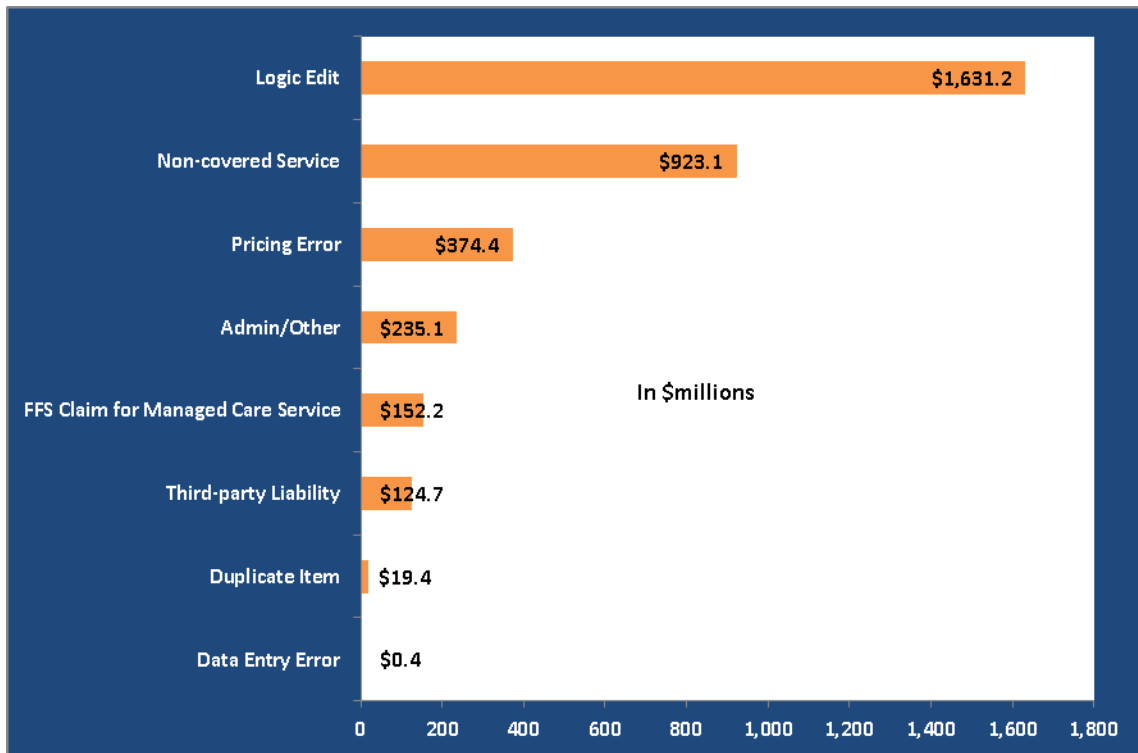
Note: Details do not always sum to the total due to rounding.

Figure S14. Medicaid FFS Data Processing Review Number of Sample Errors



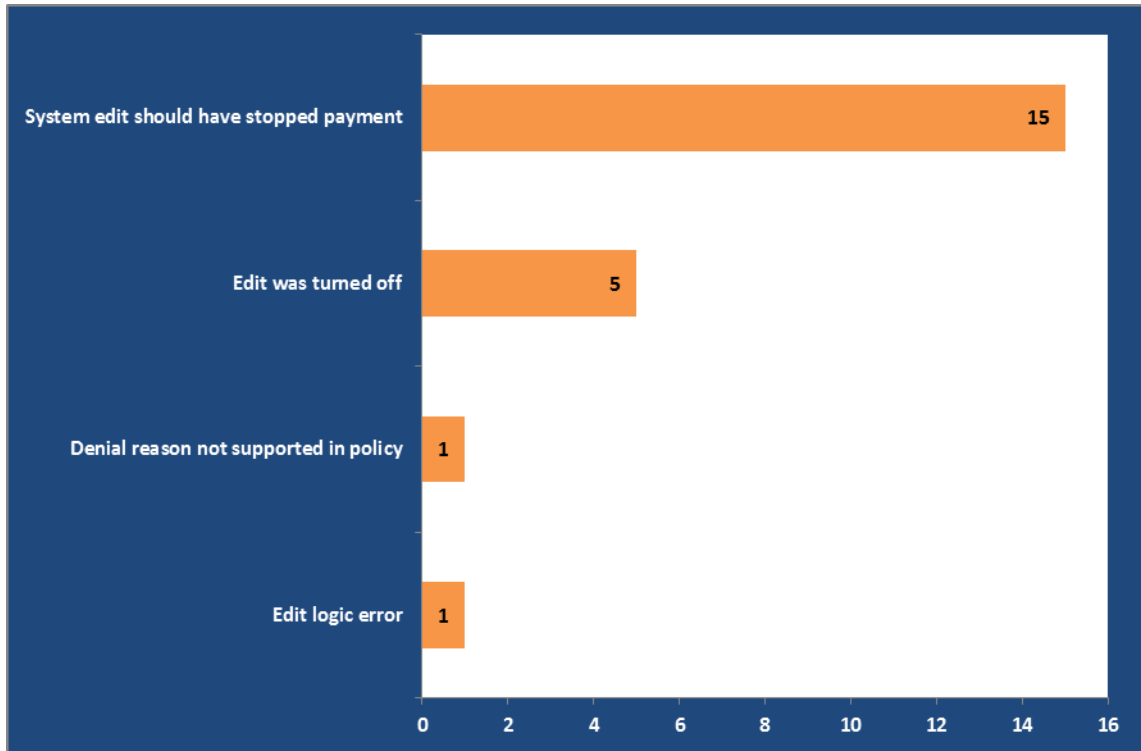
Data Processing Errors by Dollars in Error

Figure S15. Medicaid FFS Data Processing Errors in Projected Dollars



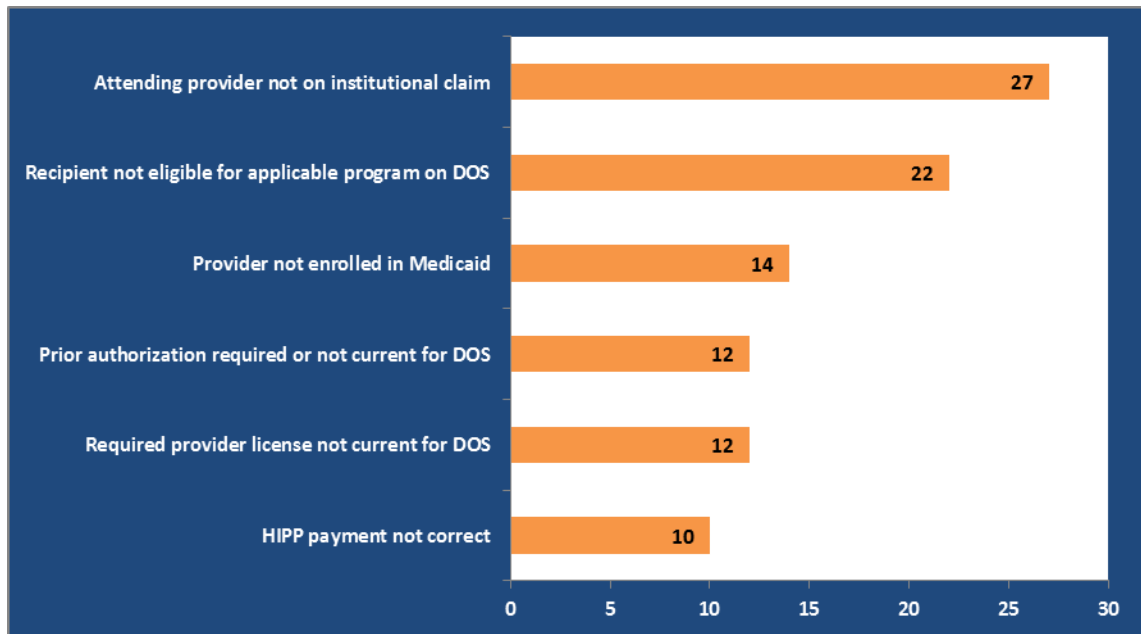
Medicaid FFS Logic Edit

Figure S16. Common Causes of Medicaid FFS "Logic Edit" Errors



Medicaid FFS Non-covered Service

Figure S17. Common Causes of Medicaid FFS "Non-covered Service" Errors



Medicaid FFS Pricing Error

Figure S18. Common Causes of Medicaid FFS "Pricing Error" Errors

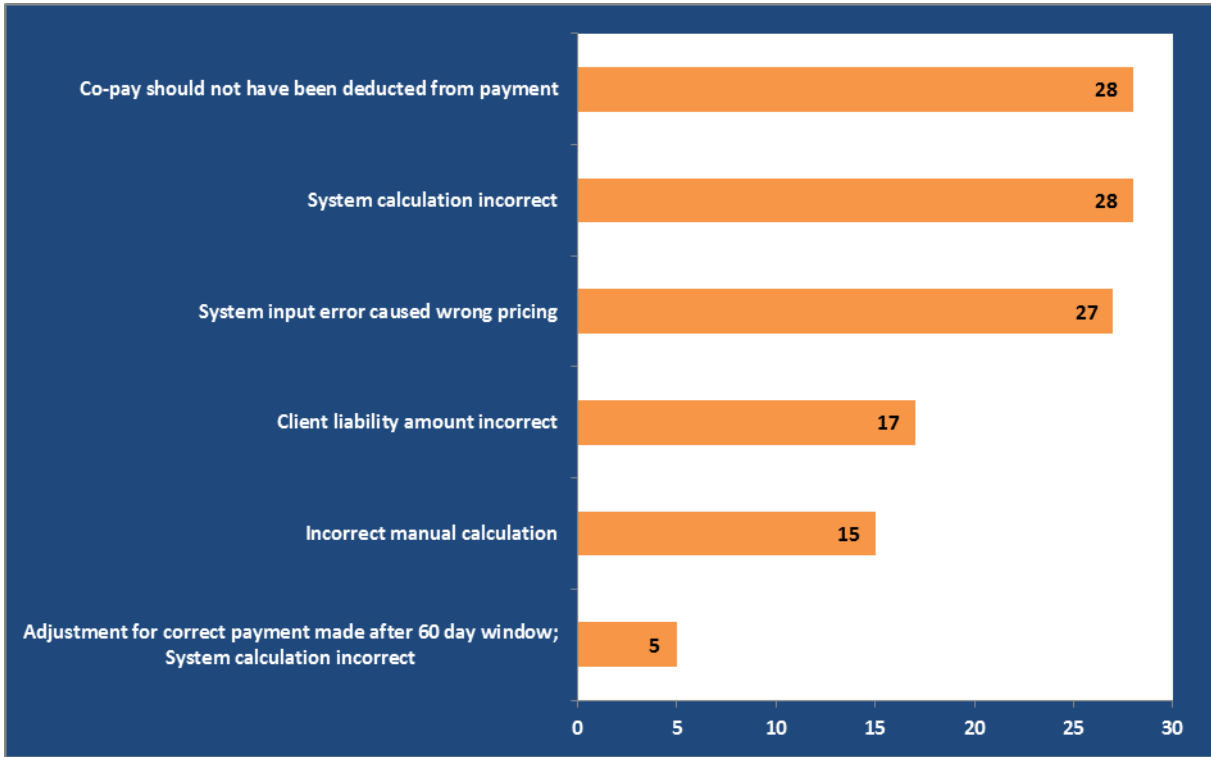
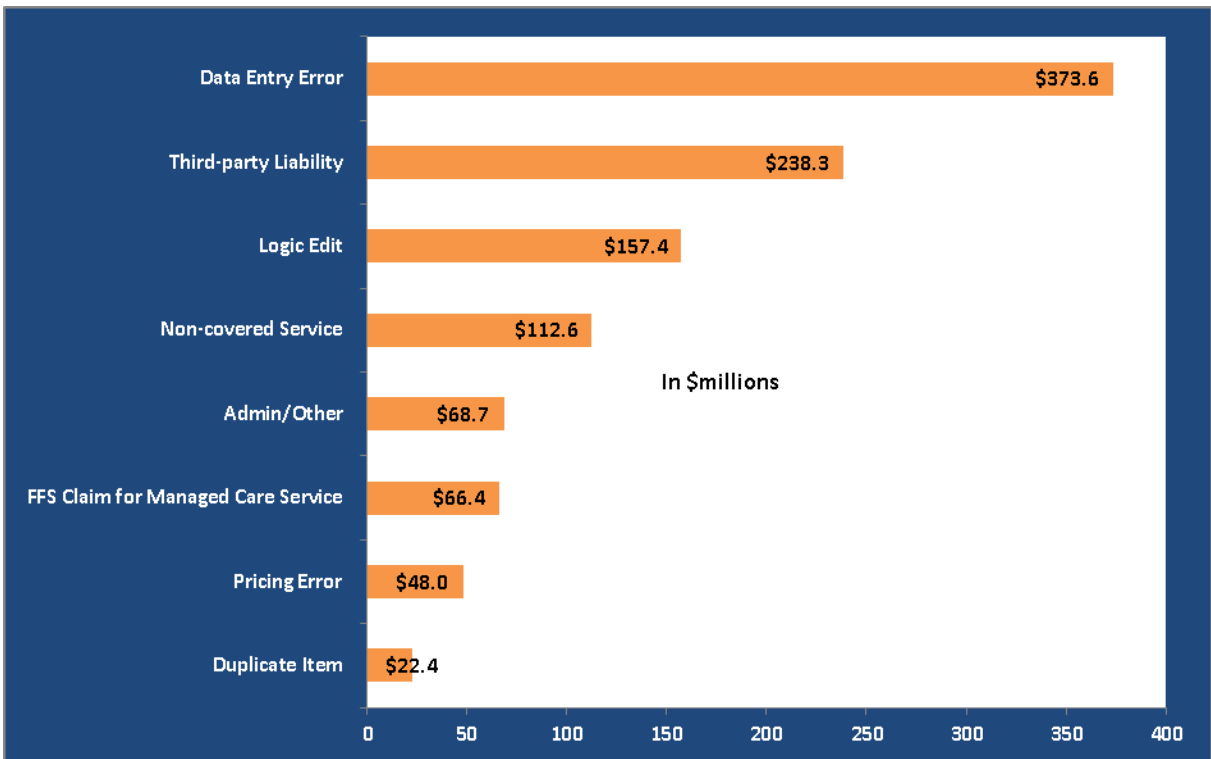


Figure S19. Medicaid FFS Data Processing Errors with Highest Projected Average Costs per Error



Medicaid Managed Care Component Payment Error Rate

Figure S20. Medicaid Managed Care Cycle-Specific Component Payment Error Rates

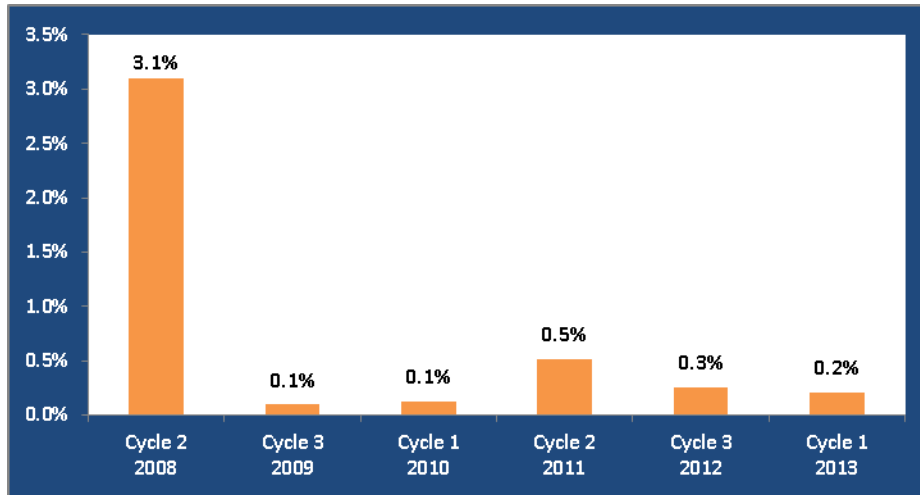


Table S6. Medicaid Managed Care Payment Error Rates by State

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
National	108	\$46,855	\$10,037,208	0.3%
ST1	6	\$557	\$26,611	2.1%
ST2	3	\$9,080	\$261,911	1.7%
ST3	3	\$3,453	\$303,502	1.3%
ST4	30	\$520	\$167,338	1.0%
ST5	4	\$1,649	\$253,860	1.0%
ST6	3	\$1,084	\$127,938	0.9%
ST7	2	\$1,187	\$182,404	0.9%
ST8	2	\$7,688	\$991,914	0.9%
ST9	2	\$424	\$260,912	0.8%
ST10	41	\$2,846	\$225,462	0.8%
ST11	1	\$6,532	\$252,135	0.5%
ST12	1	\$198	\$265,087	0.4%
ST13	1	\$983	\$174,866	0.4%
ST14	1	\$9,053	\$471,616	0.3%
ST15	1	\$1,441	\$546,081	0.1%
ST16	5	\$7	\$162,984	0.1%
ST17	1	\$101	\$231,106	0.0%
ST18	1	\$51	\$448,543	0.0%
ST19	0	\$0	\$465,155	0.0%

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
ST20	0	\$0	\$416,214	0.0%
ST21	0	\$0	\$350,638	0.0%
ST22	0	\$0	\$317,581	0.0%
ST23	0	\$0	\$308,745	0.0%
ST24	0	\$0	\$285,158	0.0%
ST25	0	\$0	\$251,266	0.0%
ST26	0	\$0	\$247,129	0.0%
ST27	0	\$0	\$216,768	0.0%
ST28	0	\$0	\$208,649	0.0%
ST29	0	\$0	\$193,605	0.0%
ST30	0	\$0	\$181,065	0.0%
ST31	0	\$0	\$178,189	0.0%
ST32	0	\$0	\$176,717	0.0%
ST33	0	\$0	\$173,478	0.0%
ST34	0	\$0	\$160,488	0.0%
ST35	0	\$0	\$127,803	0.0%
ST36	0	\$0	\$118,472	0.0%
ST37	0	\$0	\$107,281	0.0%
ST38	0	\$0	\$102,498	0.0%
ST39	0	\$0	\$77,995	0.0%
ST40	0	\$0	\$13,737	0.0%
ST41	0	\$0	\$4,306	0.0%

Medicaid Managed Care Error Analysis

Table S7. Medicaid Managed Care Data Processing Errors

Error Type	Sample Number of Errors		Projected Dollars in Error		Average Projected Cost per Error
	Number of Sample Errors	% of Total Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Projected Dollars in Error	
Non-covered Service	28	25.9%	\$341.9	87.3%	\$368.5
Duplicate Item	4	3.7%	\$38.4	9.8%	\$543.6
Pricing Error	6	5.6%	\$5.6	1.4%	\$2.7
MC Payment Error	68	63.0%	\$4.4	1.1%	\$13.5
Logic Edit	1	0.9%	\$1.0	0.3%	\$29,210.3
Rate Cell Error	1	0.9%	\$0.1	0.0%	\$30.3
Total	108	100.0%	\$391.5	100.0%	

Note: Details do not always sum to the total due to rounding.

Figure S21. Common Reasons for Medicaid Managed Care Non-covered Service Errors

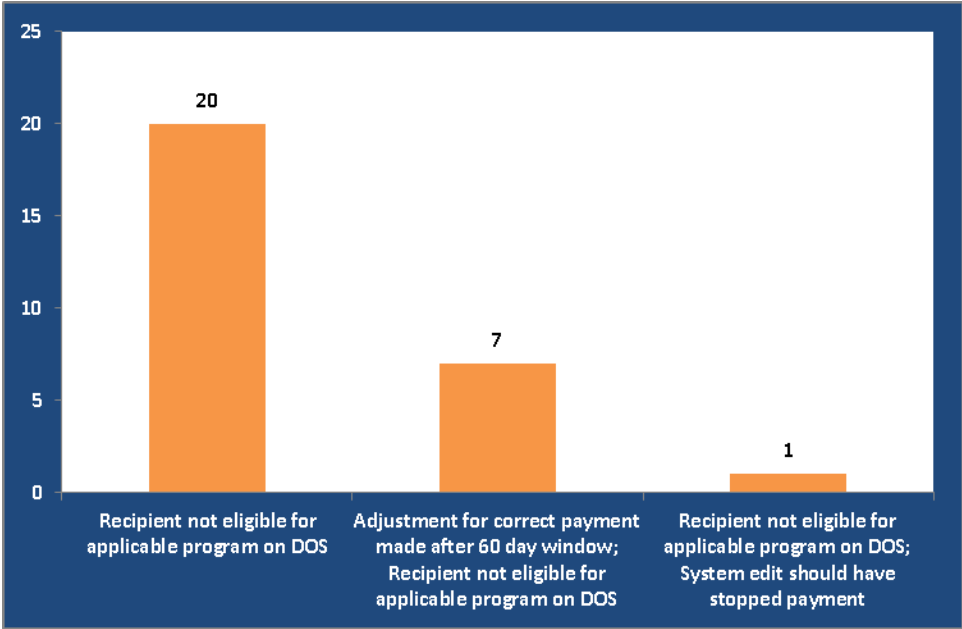


Figure S22. Common Reasons for Medicaid Managed Care Duplicate Item and Pricing Errors

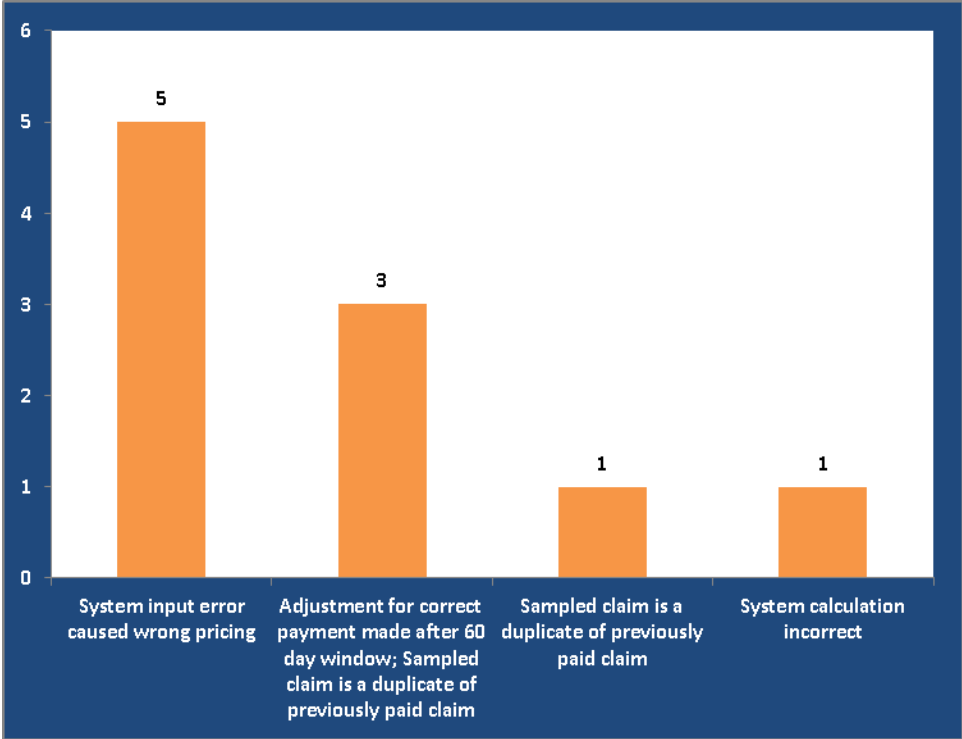
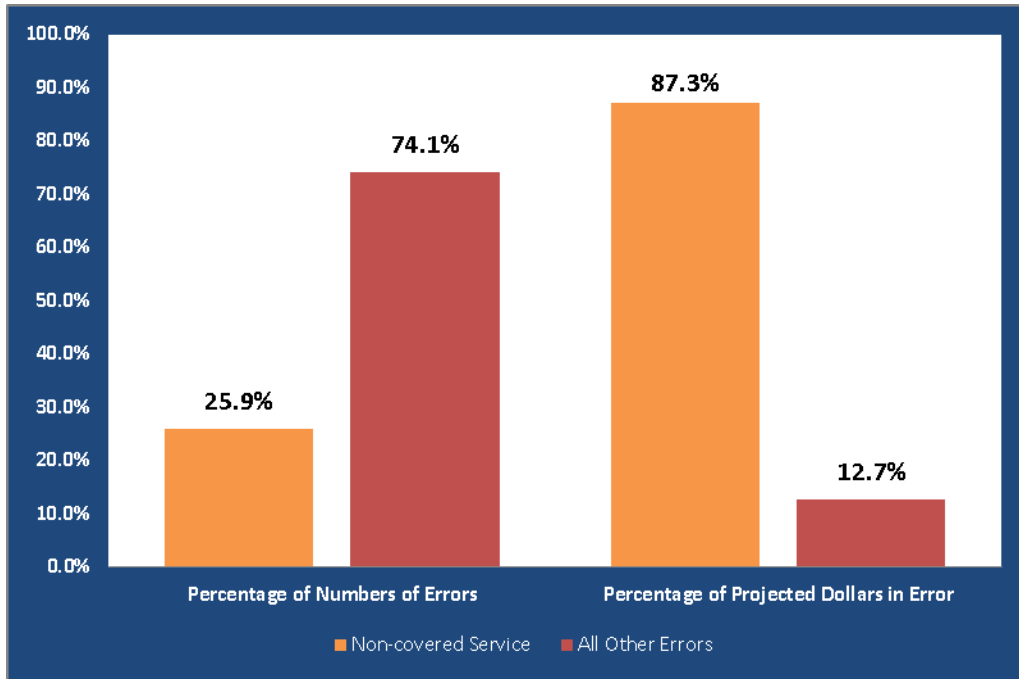


Figure S23. Medicaid Managed Care "Non-covered Service" Compared to All Other Managed Care Errors



Note: Due to rounding, the sum may not equal 100%.

Medicaid Eligibility Component Payment Error Analysis

Figure S24. Medicaid Eligibility Cycle-Specific Component Payment Error Rates

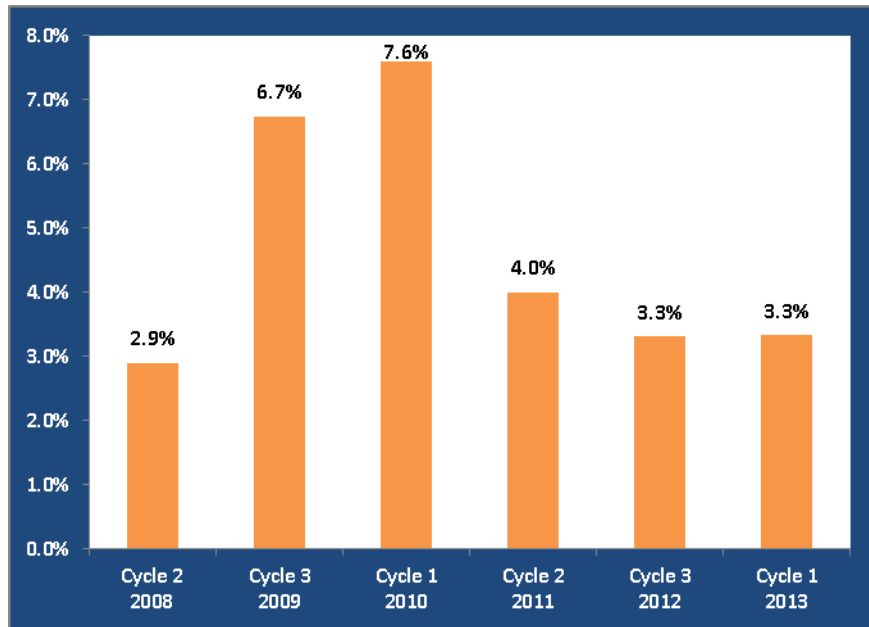


Table S8. Medicaid Eligibility Payment Error Rates by State

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
National	1,083	\$433,101	\$12,749,027	3.3%
ST1	31	\$37,011	\$195,644	30.1%
ST2	52	\$22,464	\$231,213	17.2%
ST3	112	\$56,961	\$440,291	12.8%
ST4	53	\$53,270	\$453,168	11.8%
ST5	6	\$4,048	\$139,733	8.9%
ST6	32	\$5,017	\$56,742	8.8%
ST7	89	\$19,253	\$229,690	8.3%
ST8	52	\$22,493	\$296,708	7.5%
ST9	64	\$27,416	\$956,823	6.0%
ST10	20	\$11,304	\$205,425	5.7%
ST11	34	\$25,118	\$402,989	5.6%
ST12	11	\$3,585	\$75,637	4.7%
ST13	35	\$17,878	\$387,560	4.6%
ST14	41	\$12,525	\$302,272	4.5%
ST15	54	\$27,026	\$697,776	3.9%
ST16	24	\$12,447	\$341,377	3.7%
ST17	14	\$6,466	\$215,768	3.0%
ST18	25	\$15,986	\$547,836	2.9%
ST19	12	\$3,342	\$110,163	2.8%
ST20	12	\$1,802	\$89,327	2.3%
ST21	15	\$2,306	\$116,091	2.2%
ST22	29	\$9,194	\$421,966	2.2%
ST23	59	\$6,194	\$335,028	2.0%
ST24	13	\$959	\$48,901	2.0%
ST25	13	\$1,685	\$140,168	1.5%
ST26	15	\$702	\$48,861	1.4%
ST27	32	\$2,285	\$211,462	1.4%
ST28	13	\$3,799	\$418,094	1.0%
ST29	16	\$2,593	\$450,233	1.0%
ST30	19	\$2,940	\$304,894	1.0%
ST31	14	\$2,762	\$328,774	0.8%
ST32	10	\$1,302	\$176,750	0.7%
ST33	6	\$647	\$88,041	0.7%
ST34	15	\$5,607	\$422,912	0.5%
ST35	11	\$1,952	\$487,811	0.4%

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
ST36	1	\$115	\$37,683	0.3%
ST37	2	\$228	\$83,846	0.3%
ST38	5	\$1,033	\$164,888	0.2%
ST39	2	\$115	\$160,958	0.1%
ST40	1	\$200	\$293,459	0.1%
ST41	1	\$354	\$90,401	0.0%
ST42	4	\$634	\$214,533	0.0%
ST43	1	\$15	\$59,134	0.0%
ST44	5	\$33	\$116,426	0.0%
ST45	1	\$25	\$95,352	0.0%
ST46	2	\$6	\$131,014	0.0%
ST47	1	\$3	\$239,974	0.0%
ST48	1	\$0	\$279,457	0.0%
ST49	1	\$0	\$240,690	0.0%
ST50	0	\$0	\$107,047	0.0%
ST51	2	\$0	\$58,038	0.0%

Medicaid Eligibility Error Analysis

Table S9. Medicaid Eligibility Review Findings for Active Cases and Projected Dollars in Error

Findings	Number of Sample Cases with Payment Errors	Percentage of Total Number of Sample Cases with Payment Errors	Projected Dollars in Error (\$millions)
Not Eligible	660	60.9%	\$9,140.4
Undetermined	203	18.7%	\$2,556.5
Liability Understated	110	10.2%	\$1,661.5
Eligible with Ineligible Services	52	4.8%	\$386.6
Liability Overstated	44	4.1%	\$247.3
Managed Care Error, Ineligible for Managed Care	5	0.5%	\$24.1
Managed Care Error, Eligible for Managed Care but Improperly Enrolled	9	0.8%	\$6.5
Total	1,083	100.0%	\$14,023.0

Table S10. Number and Dollar Amount of Medicaid Eligibility Errors for Active Cases

Error Type	Overpayments		Underpayments		Percentage of Total Errors	
	Number of Sample Payment Errors	Projected Dollars in Error (\$millions)	Number of Sample Payment Errors	Projected Dollars in Error (\$millions)	% of Total Number of Sample Payment Errors	% of Projected Dollars in Error
Not Eligible	660	\$9,140.4	0	\$0.0	60.9%	65.2%
Undetermined	203	\$2,556.5	0	\$0.0	18.7%	18.2%
Liability Understated	110	\$1,661.5	0	\$0.0	10.2%	11.8%
Eligible with Ineligible Services	52	\$386.6	0	\$0.0	4.8%	2.8%
Liability Overstated	0	\$0.0	44	\$247.3	4.1%	1.8%
Managed Care Error, Ineligible for Managed Care	5	\$24.1	0	\$0.0	0.5%	0.2%
Managed Care Error, Eligible for Managed Care but Improperly Enrolled	9	\$6.5	0	\$0.0	0.8%	0.0%
Total	1,039	\$13,775.7	44	\$247.3	100.0%	100.0%

Note: Details do not always sum to the total due to rounding.

Table S11. Medicaid Eligibility Review Findings for Negative Cases

Stratum	Number of Sample Cases	Percentage of Sample Cases
Correct	11,017	93.9%
Improper Termination	510	4.3%
Improper Denial	208	1.8%
Total Negative Cases	11,735	100.0%

* Note: Due to rounding, the sum may not equal 100%.

Appendix 3: CHIP Trending for Cycle-Specific and National Rolling Error Rates

Table B1. Inception to Date Cycle-Specific CHIP Improper Payment Component Error Rates

Year	FFS	Managed Care	Eligibility	Overall*
2012	6.9%	0.1%	5.7%	8.2%
2013	6.1%	0.5%	4.4%	6.8%

*The overall estimate is comprised of the weighted sum of the FFS and managed care components, plus the eligibility component, minus a small adjustment to account for the overlap between the claims and eligibility review functions.

Table B2. National Rolling CHIP Improper Payment Component Error Rates

Year	FFS	Managed Care	Eligibility	Overall*
2013 Rolling Rates	5.7%	0.2%	5.1%	7.1%

*The overall estimate is comprised of the weighted sum of the FFS and managed care components, plus the eligibility component, minus a small adjustment to account for the overlap between the claims and eligibility review functions.

Appendix 4: CHIP Supplemental Information

CMS reported a rolling error rate for CHIP in 2013 based on the 34 states reviewed from 2012-2013. Unless otherwise noted, all tables and figures in Appendix 4 are based on the rolling rate.

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CHIP Overpayments and Underpayments

Table T12. Summary of Projected CHIP Overpayments and Underpayments

Category	Overpayments		Underpayments	
	Number of Sample Payment Errors	Projected Dollars in Errors (\$millions)	Number of Sample Payment Errors	Projected Dollars in Errors (\$millions)
FFS Medical Review	531	\$200.9	8	\$1.6
FFS Data Processing	340	\$70.6	69	\$8.2
Managed Care	11	\$18.7	105	\$0.1
Eligibility	1,348	\$650.7	70	\$7.2
Total	2,230	\$941.0	252	\$17.1

Note: Details do not always sum to the total due to rounding.

CHIP FFS Component Payment Error Rate

Figure T25. CHIP FFS Cycle-Specific Payment Error Rates for 2007 - 2013

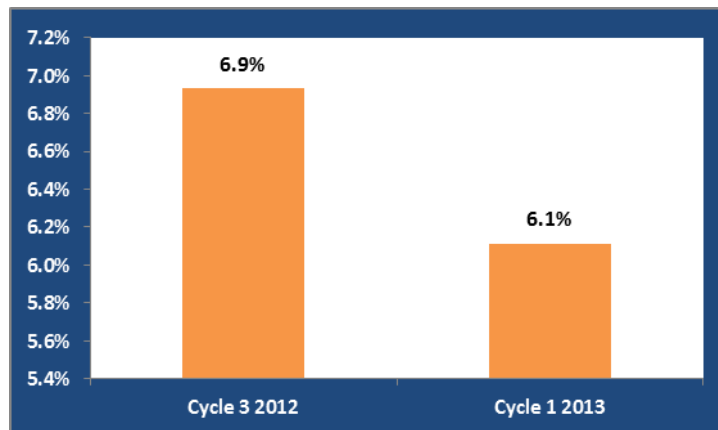


Table T13. FFS Medical Review and Data Processing Payment Error Rates by State

State	Medical Review			Data Processing			Sample Paid Amount	Overall Error Rate
	Number of Sample Errors	Sample Dollars in Error	Error Rate	Number of Sample Errors	Sample Dollars in Error	Error Rate		
National	539	\$351,004	4.4%	409	\$290,886	1.7%	\$30,751,018	5.7%
ST1	105	\$160,674	22.7%	77	\$84,295	17.6%	\$1,764,240	34.8%
ST2	41	\$2,945	13.1%	18	\$59,038	5.3%	\$382,040	16.9%
ST3	63	\$30,959	6.4%	46	\$21,236	7.1%	\$1,811,991	11.7%
ST4	49	\$4,883	10.0%	4	\$1,083	0.3%	\$275,670	10.3%
ST5	24	\$12,855	4.1%	19	\$49,499	3.5%	\$3,125,437	7.4%
ST6	19	\$10,357	5.2%	17	\$7,739	0.1%	\$563,989	5.3%
ST7	19	\$3,948	5.1%	0	\$0	0.0%	\$307,475	5.1%
ST8	22	\$3,362	4.2%	5	\$626	0.0%	\$241,316	4.2%
ST9	22	\$15,587	2.6%	30	\$11,125	0.9%	\$2,561,844	3.5%
ST10	16	\$26,459	3.4%	0	\$0	0.0%	\$517,887	3.4%
ST11	14	\$947	1.9%	35	\$11,411	1.5%	\$346,413	3.3%
ST12	17	\$10,292	2.8%	3	\$194	0.4%	\$917,090	3.2%
ST13	6	\$5,403	2.2%	23	\$13,782	0.8%	\$617,443	3.0%
ST14	8	\$5,038	1.2%	15	\$19,789	1.7%	\$1,324,845	2.7%
ST15	16	\$7,502	2.4%	3	\$49	0.3%	\$133,015	2.7%
ST16	9	\$692	2.7%	0	\$0	0.0%	\$264,447	2.7%
ST17	18	\$11,365	2.7%	0	\$0	0.0%	\$946,856	2.7%
ST18	11	\$4,759	1.9%	6	\$432	0.7%	\$109,246	2.6%
ST19	7	\$889	2.2%	2	\$42	0.3%	\$494,140	2.5%
ST20	9	\$1,681	1.6%	4	\$439	0.3%	\$457,730	1.7%
ST21	5	\$1,015	1.3%	15	\$857	0.1%	\$174,969	1.4%
ST22	3	\$128	0.3%	9	\$5,502	1.3%	\$286,375	1.3%
ST23	8	\$4,901	1.2%	2	\$1	0.0%	\$775,647	1.2%
ST24	6	\$10,941	0.7%	1	\$66	0.2%	\$985,112	0.9%
ST25	4	\$10,140	0.6%	3	\$228	0.2%	\$975,610	0.8%
ST26	4	\$1,631	0.6%	2	\$0	0.0%	\$1,312,781	0.6%
ST27	1	\$108	0.2%	44	\$52	0.1%	\$527,207	0.3%
ST28	9	\$1,407	0.2%	9	\$2,413	0.1%	\$157,298	0.3%
ST29	3	\$48	0.2%	6	\$203	0.1%	\$376,640	0.3%
ST30	1	\$89	0.0%	11	\$785	0.2%	\$8,016,264	0.2%

CHIP FFS Payment Errors by Type of Error

Figure T26. CHIP FFS Highest Total Dollar Error Types

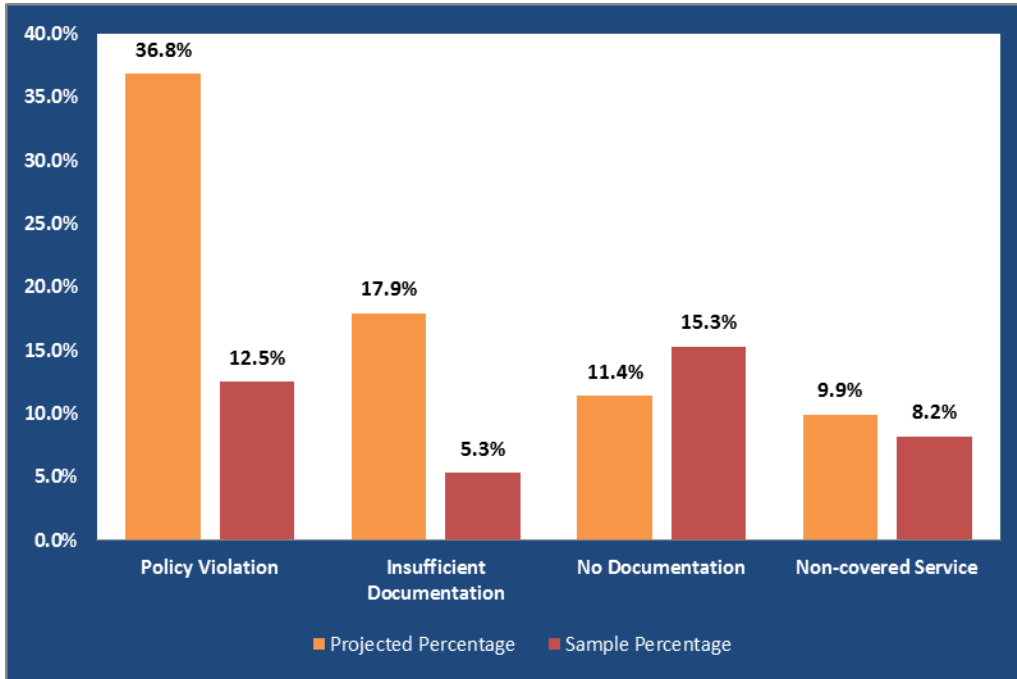
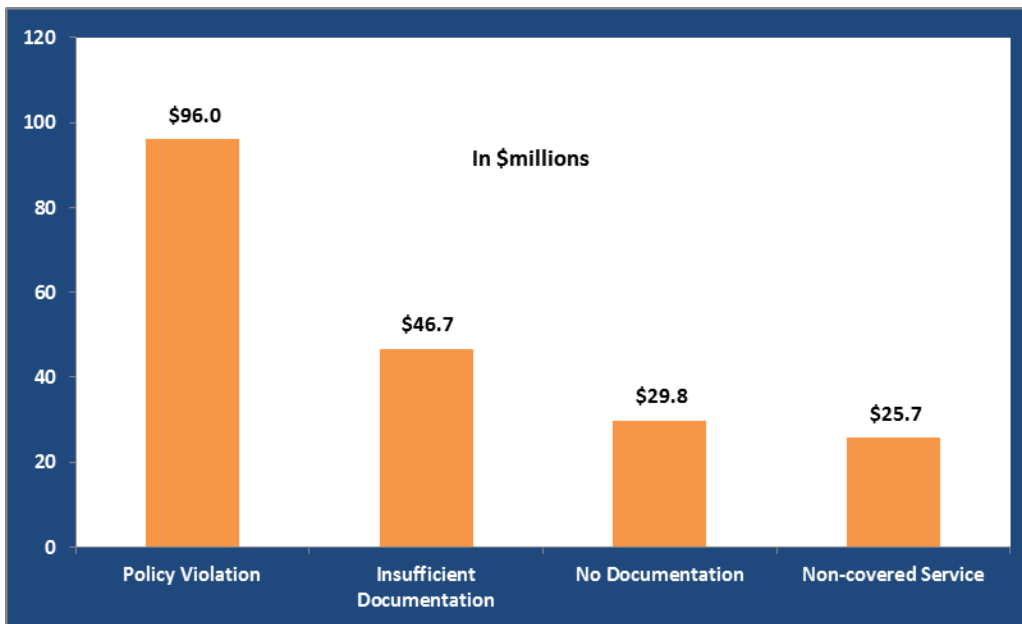


Figure T27. CHIP FFS Projected Dollar Amounts of Highest Total Dollar Error Types



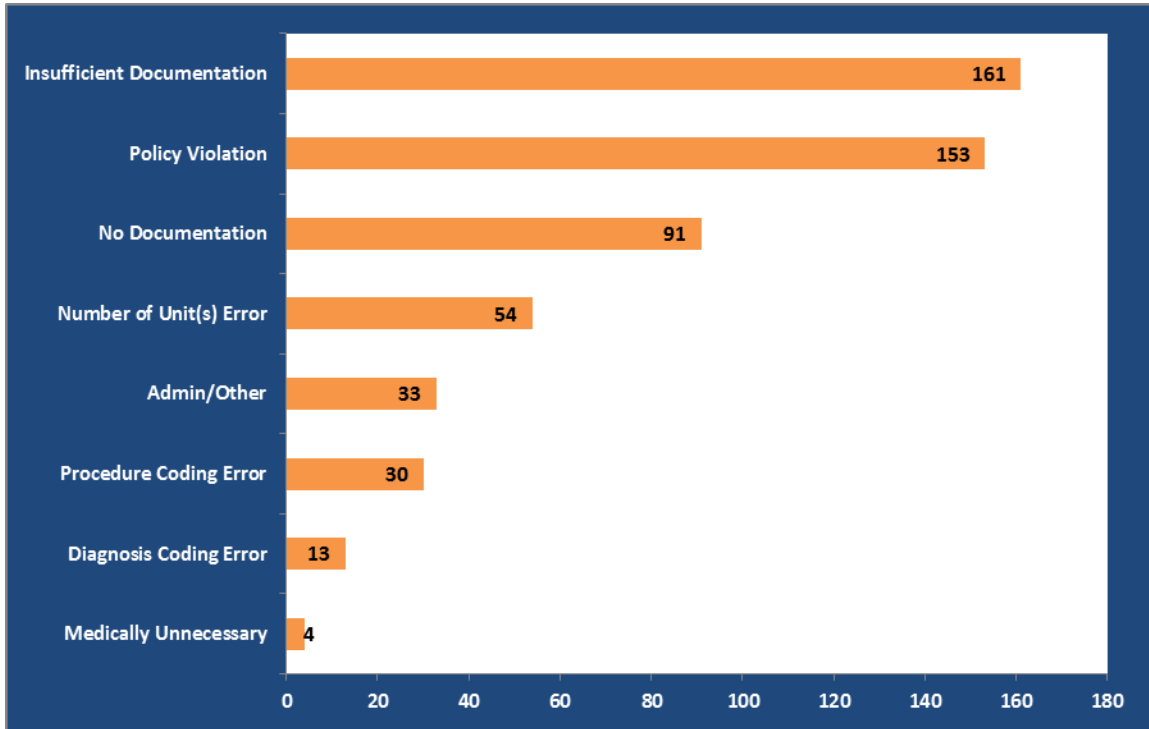
CHIP FFS Medical Review Payment Errors

Table T14. Number and Projected Dollar Amount CHIP FFS Medical Review Errors

Error Type	Overpayments		Underpayments		Percentage of Total Errors		Average Projected Cost per Error
	Number of Sample Errors	Projected Dollars in Error (\$millions)	Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Total Number of Sample Errors	% of Projected Dollars in Error	
Policy Violation	153	\$95.9	0	\$0.0	28.4%	47.3%	\$224.44
Insufficient Documentation	161	\$46.7	0	\$0.0	29.9%	23.0%	\$79.65
No Documentation	91	\$29.0	0	\$0.0	16.9%	14.3%	\$176.00
Admin/Other	33	\$11.0	0	\$0.0	6.1%	5.4%	\$145.70
Diagnosis Coding Error	8	\$6.8	5	\$0.4	2.4%	3.6%	\$12,100.31
Number of Unit(s) Error	53	\$6.1	1	\$0.4	10.0%	3.2%	\$209.02
Procedure Coding Error	28	\$4.8	2	\$0.7	5.6%	2.7%	\$122.24
Medically Unnecessary	4	\$0.7	0	\$0.0	0.7%	0.3%	\$3,944.99
Unbundling	0	\$0.0	0	\$0.0	0.0%	0.0%	\$0.00
Total	531	\$200.9	8	\$1.6	100.0%	100.0%	\$0.00

Note: Details do not always sum to the total due to rounding.

Figure T28. CHIP FFS Medical Review Number of Sample Errors



Medical Review Errors by Projected Dollars in Error

Figure T29. CHIP FFS Projected Dollar Amount of Medical Review Errors

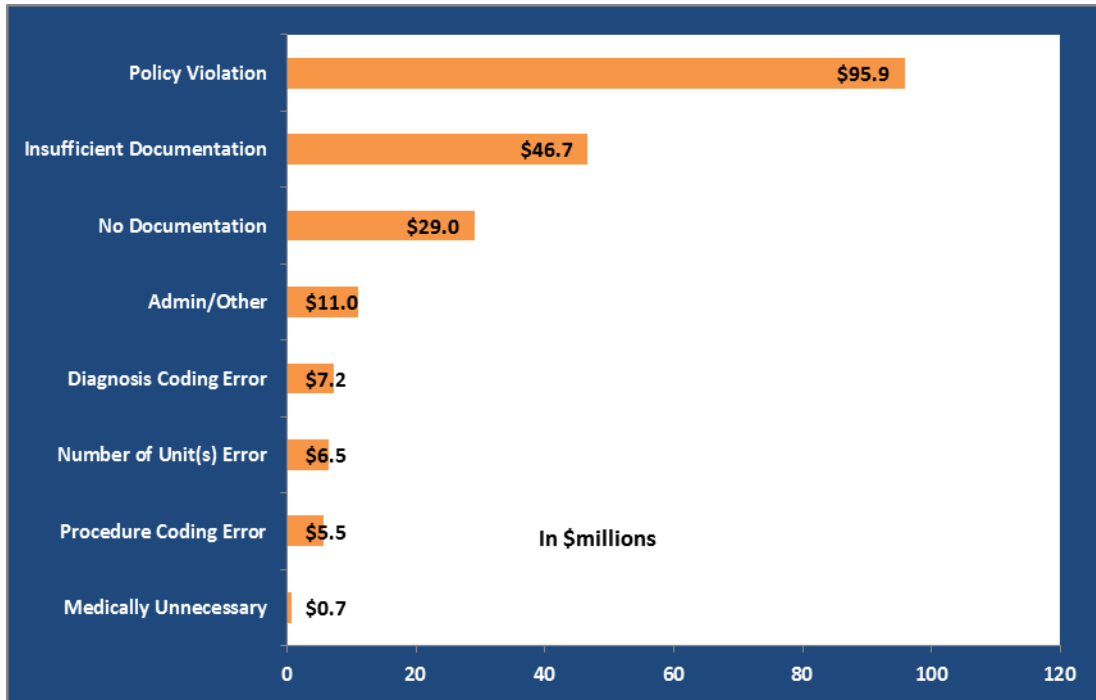
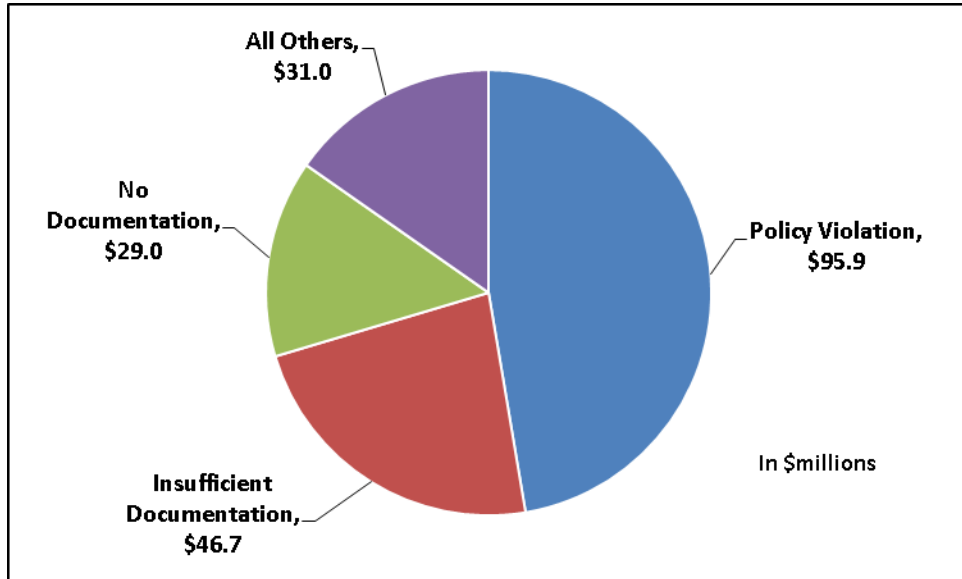
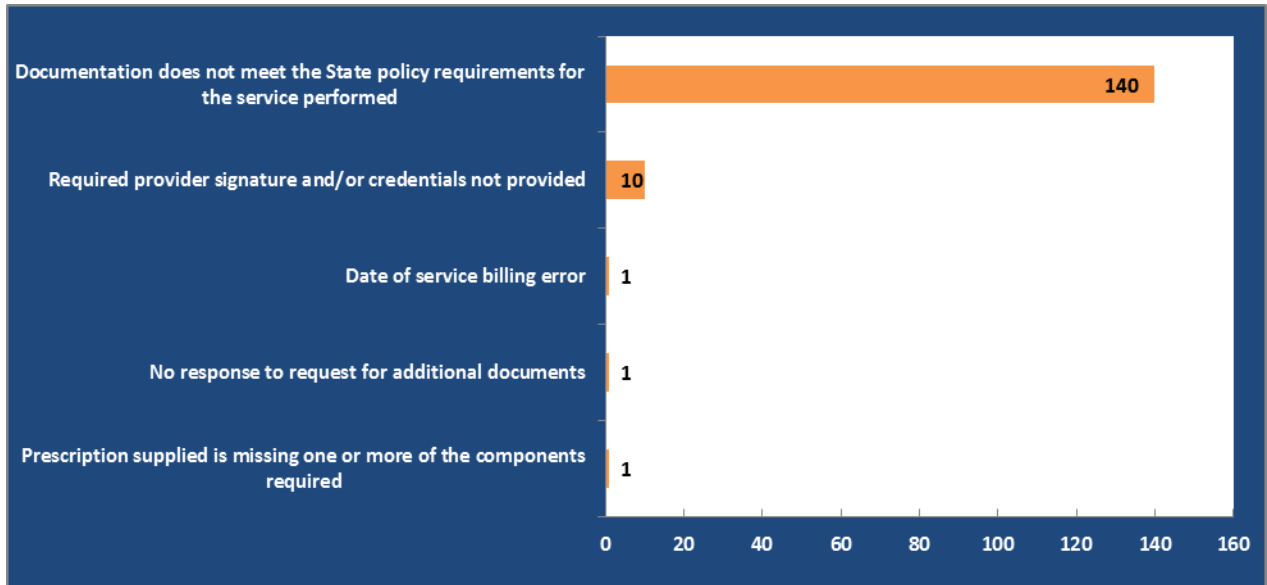


Figure T30. CHIP FFS Error Types with the Highest Projected Dollar Amount of Medical Review Errors



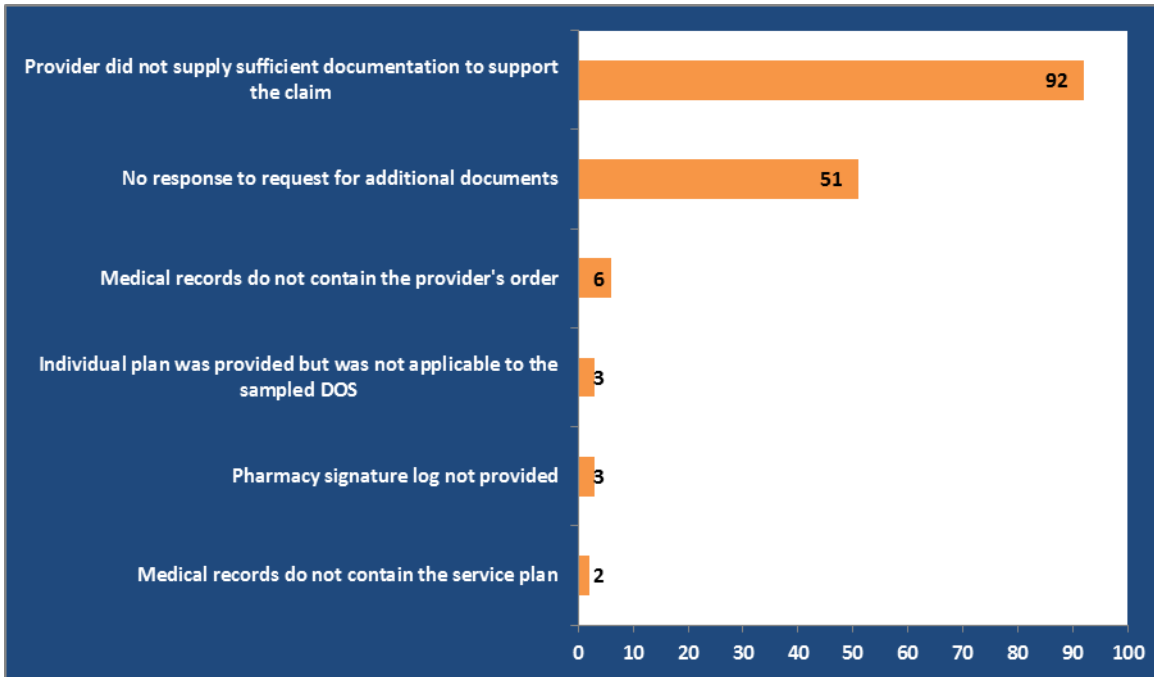
CHIP FFS Policy Violation

Figure T31. Common Causes of CHIP FFS "Policy Violation" Sample Errors



CHIP FFS Insufficient Documentation

Figure T32. Common Causes of CHIP FFS "Insufficient Documentation" Sample Errors



CHIP FFS No Documentation

Figure T33. Common Causes of CHIP FFS "No Documentation" Sample Errors

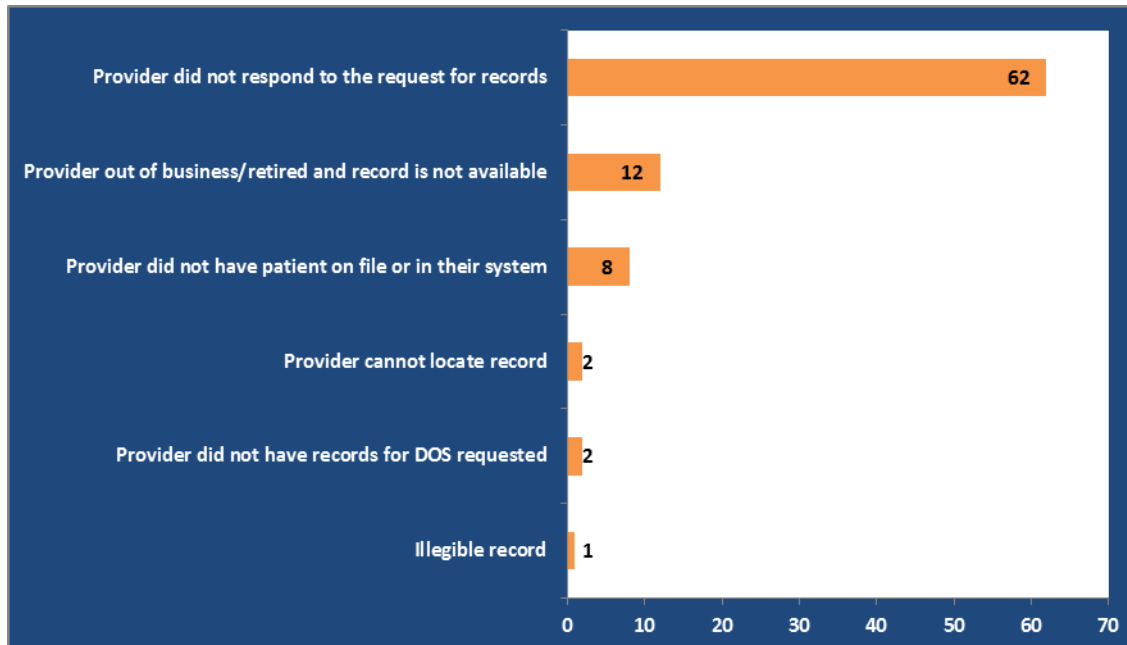
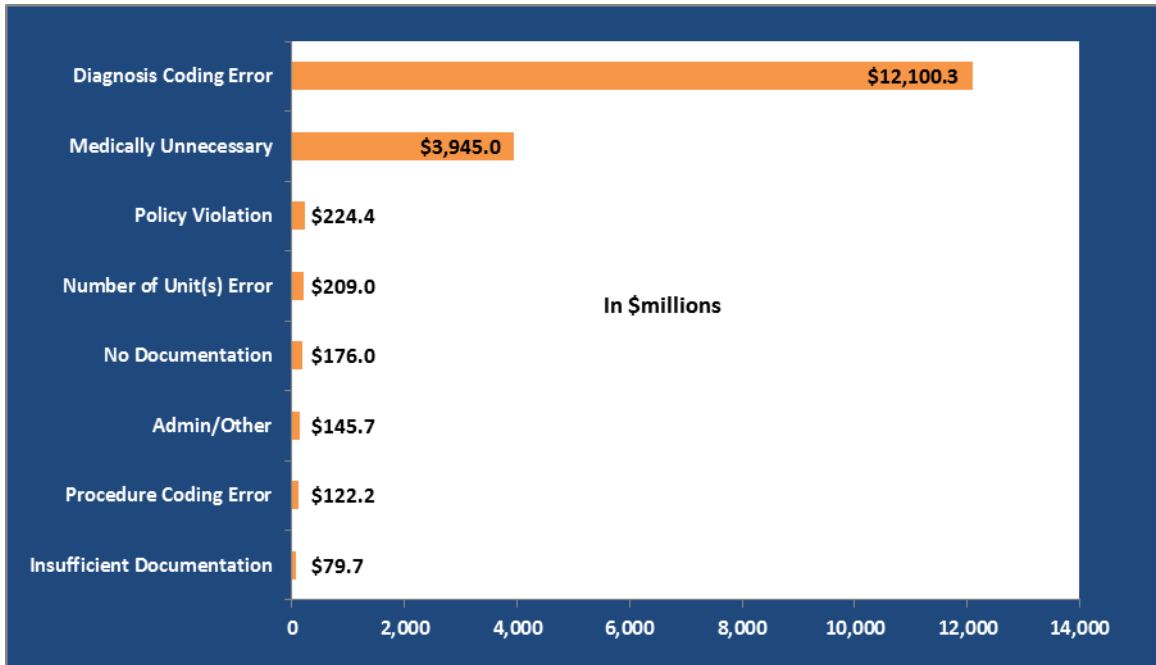


Figure T34. CHIP FFS Medical Review Errors with the Highest Average Projected Cost Per Error



CHIP FFS Medical Review Errors by Service Type

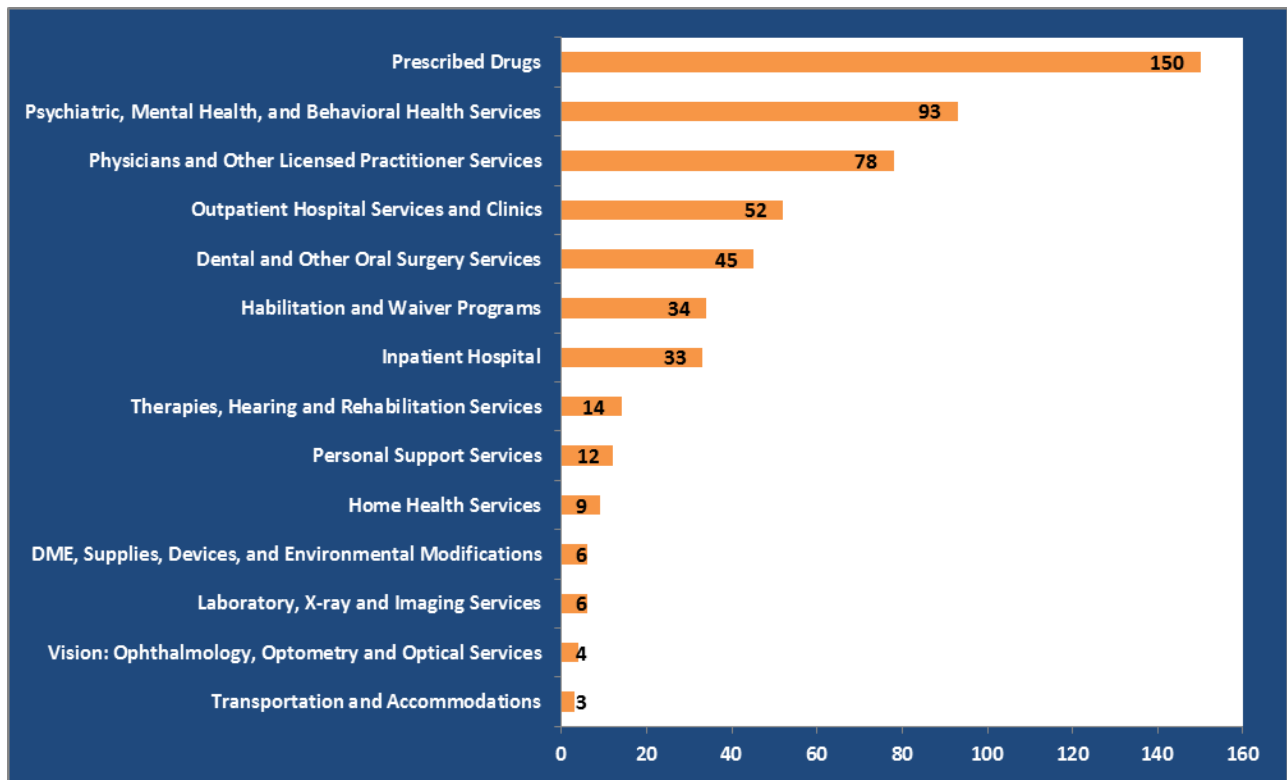
Table T15. Number and Projected Dollar Amount of CHIP FFS Medical Review Errors

Service Type	Number of Sample Payment Errors		Projected Dollars in Error		Average Projected Cost per Error
	Number of Sample Payment Errors	% of Total Number of Errors	Projected Dollars in Error (\$millions)	% of Projected Dollars in Error	
Prescribed Drugs	150	27.8%	\$98.7	48.7%	\$216.42
Physicians and Other Licensed Practitioner Services	78	14.5%	\$21.9	10.8%	\$67.04
Psychiatric, Mental Health, and Behavioral Health Services	93	17.3%	\$20.2	10.0%	\$174.90
Outpatient Hospital Services and Clinics	52	9.6%	\$17.9	8.8%	\$156.34
Inpatient Hospital	33	6.1%	\$12.0	5.9%	\$6,995.40
Habilitation and Waiver Programs	34	6.3%	\$10.2	5.1%	\$86.34
Dental and Other Oral Surgery Services	45	8.3%	\$8.3	4.1%	\$66.26
Therapies, Hearing and Rehabilitation Services	14	2.6%	\$6.8	3.4%	\$166.79
Personal Support Services	12	2.2%	\$2.1	1.1%	\$467.63
Durable Medical Equipment (DME) and supplies, Prosthetic/Orthopedic devices	6	1.1%	\$1.9	0.9%	\$417.59
Vision: Ophthalmology, Optometry and Optical Services	4	0.7%	\$1.3	0.6%	\$123.12

Service Type	Number of Sample Payment Errors		Projected Dollars in Error		Average Projected Cost per Error
	Number of Sample Payment Errors	% of Total Number of Errors	Projected Dollars in Error (\$millions)	% of Projected Dollars in Error	
Home Health Services	9	1.7%	\$0.7	0.4%	\$128.09
Laboratory, X-ray and Imaging Services	6	1.1%	\$0.3	0.1%	\$59.03
Transportation and Accommodations	3	0.6%	\$0.1	0.0%	\$94.52
Total	539	100.0%	\$202.5	100.0%	

Note: Details do not always sum to the total due to rounding.

Figure T35. CHIP FFS Number of Medical Review Errors by Service Type



Note: zero counts are currently not shown in the graph.

Figure T36. CHIP FFS Projected Dollar Amount of Medical Review Errors by Service Type

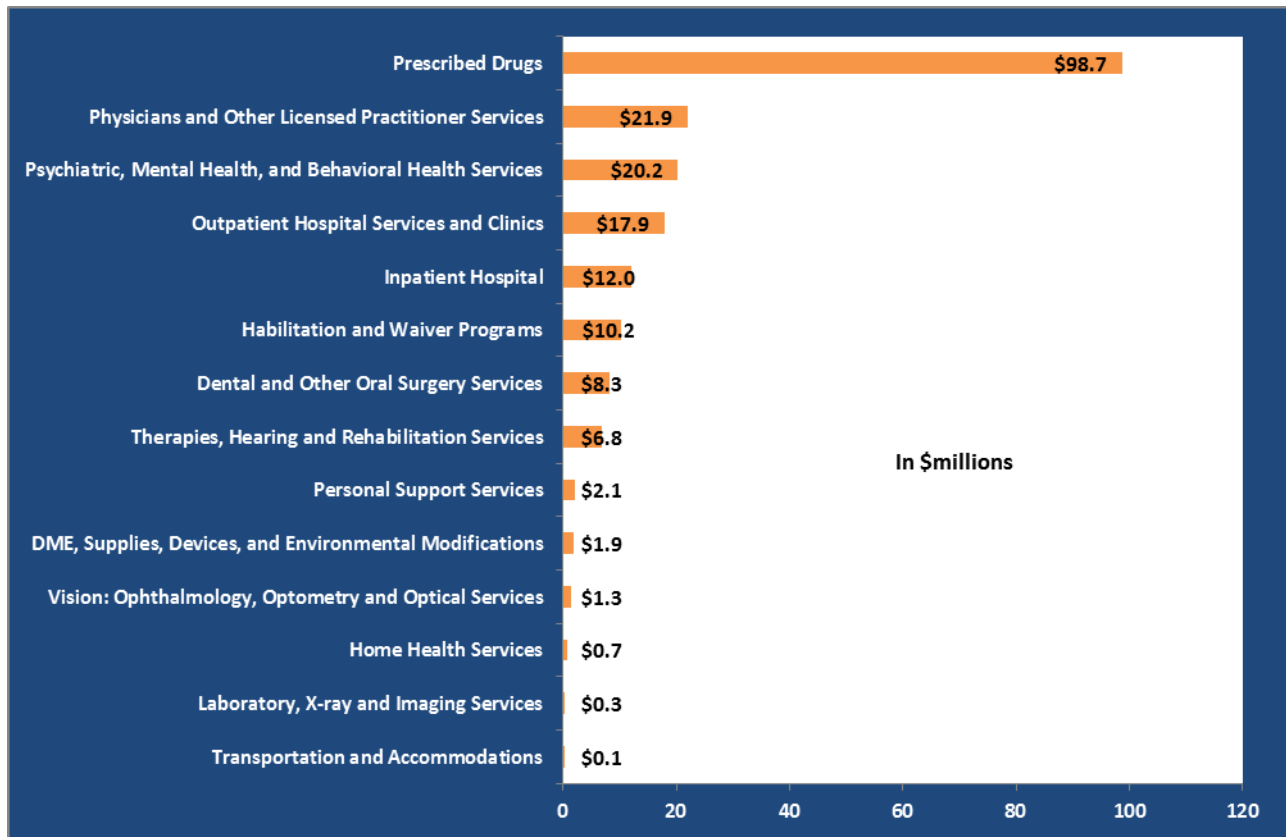
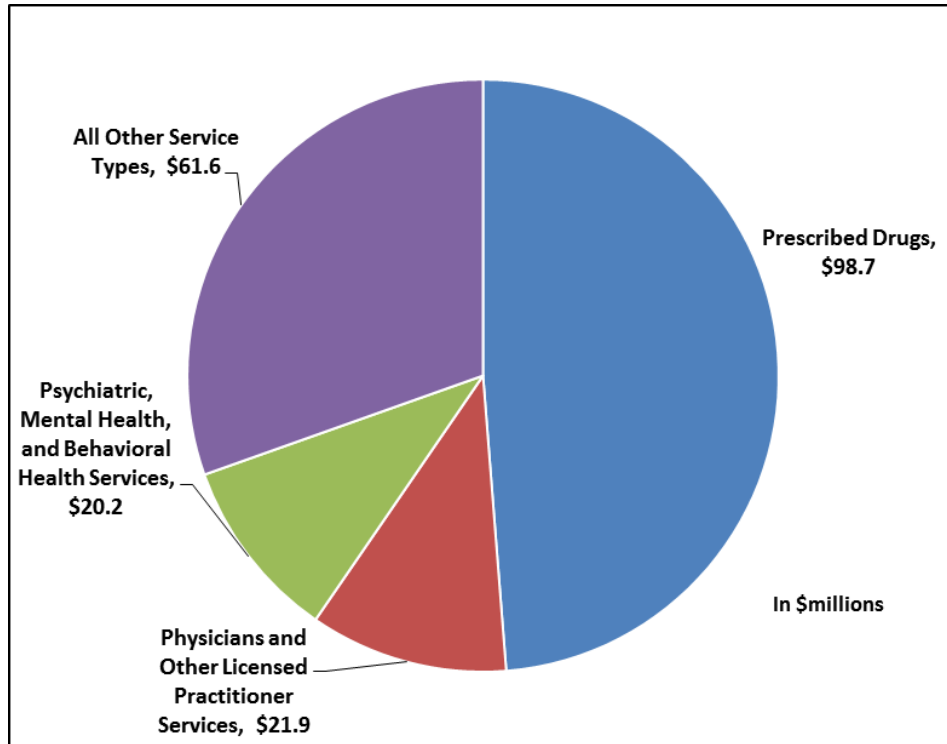


Figure T37. CHIP FFS Service Types with the Highest Projected Dollar Amount of Medical Review Errors



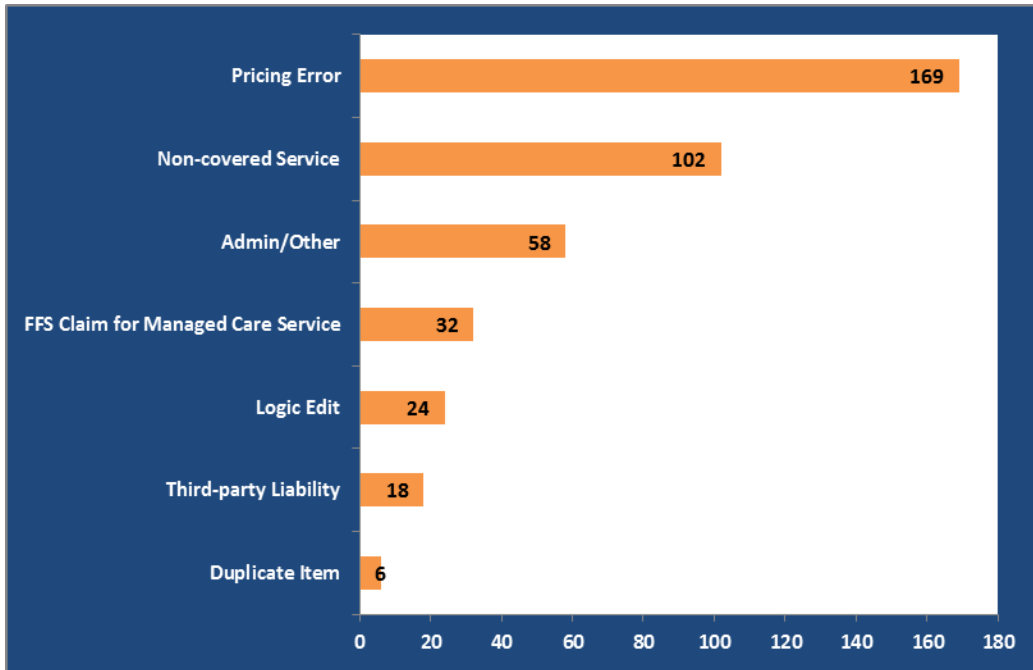
CHIP FFS Data Processing Payment Errors

Table T16. Number and Projected Dollar Amount of CHIP FFS Data Processing Errors

Error Type	Overpayments		Underpayments		Percentage of Total Errors		Average Projected Cost per Error
	Number of Sample Errors	Projected Dollars in Error (\$millions)	Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Sample Number of Errors	% of Projected Dollars in Error	
Non-covered Service	98	\$35.2	4	\$1.2	24.9%	46.2%	\$112.25
Admin/Other	58	\$20.7	0	\$0.0	14.2%	26.2%	\$204.96
FFS Claim for Managed Care Service	32	\$9.2	0	\$0.0	7.8%	11.7%	\$399.94
Pricing Error	117	\$1.5	52	\$7.0	41.3%	10.8%	\$23.78
Logic Edit	16	\$2.8	8	\$0.0	5.9%	3.6%	\$215.04
Third-party Liability	13	\$0.9	5	\$0.0	4.4%	1.1%	\$97.25
Duplicate Item	6	\$0.3	0	\$0.0	1.5%	0.4%	\$135.82
Total	340	\$70.6	69	\$8.2	100.0%	100.0%	

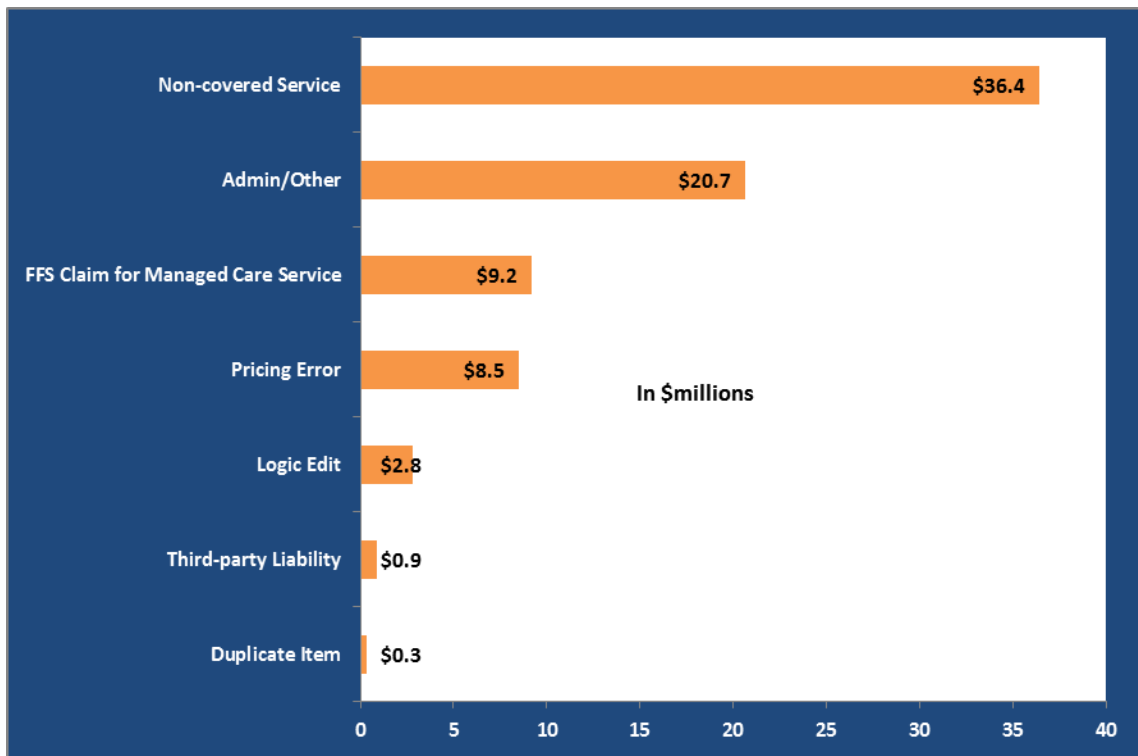
Note: Details do not always sum to the total due to rounding.

Figure T38. CHIP FFS Data Processing Review Number of Sample Errors



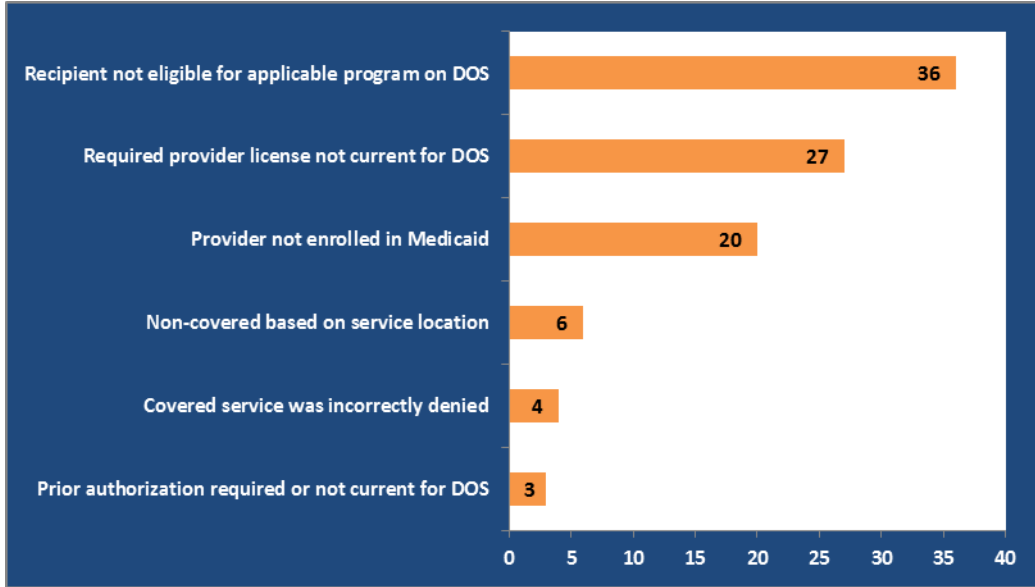
Data Processing Errors by Dollars in Error

Figure T39. CHIP FFS Data Processing Errors in Projected Dollars



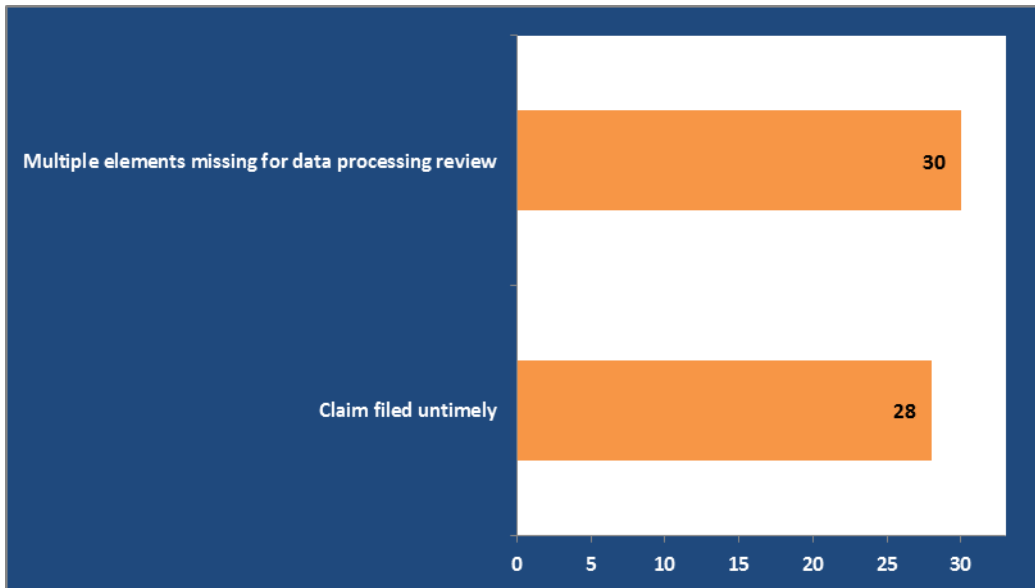
CHIP FFS Non-covered Service

Figure T40. Common Causes of CHIP FFS "Non-covered Service" Errors



CHIP FFS Admin/Other

Figure T41. Common Causes of CHIP FFS "Admin/Other" Errors



CHIP FFS Claim for Managed Care Service

Figure T42. Common Causes of CHIP FFS "FFS Claim for Managed Care Service" Errors

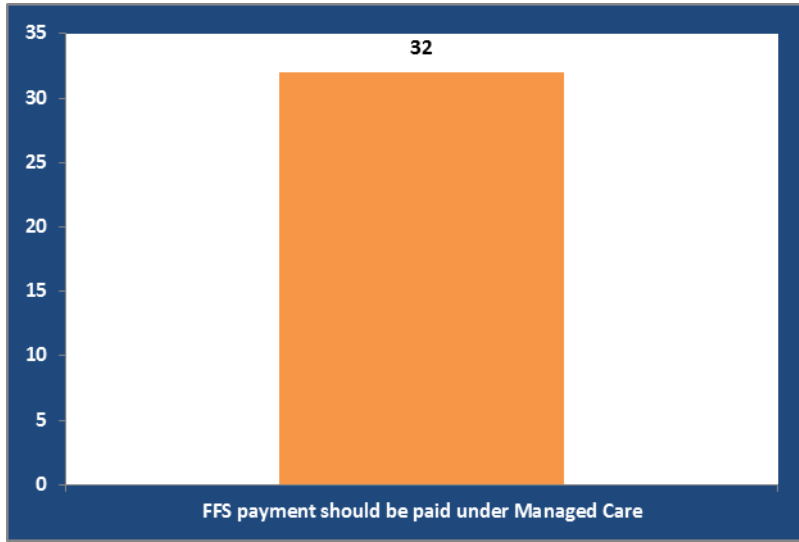
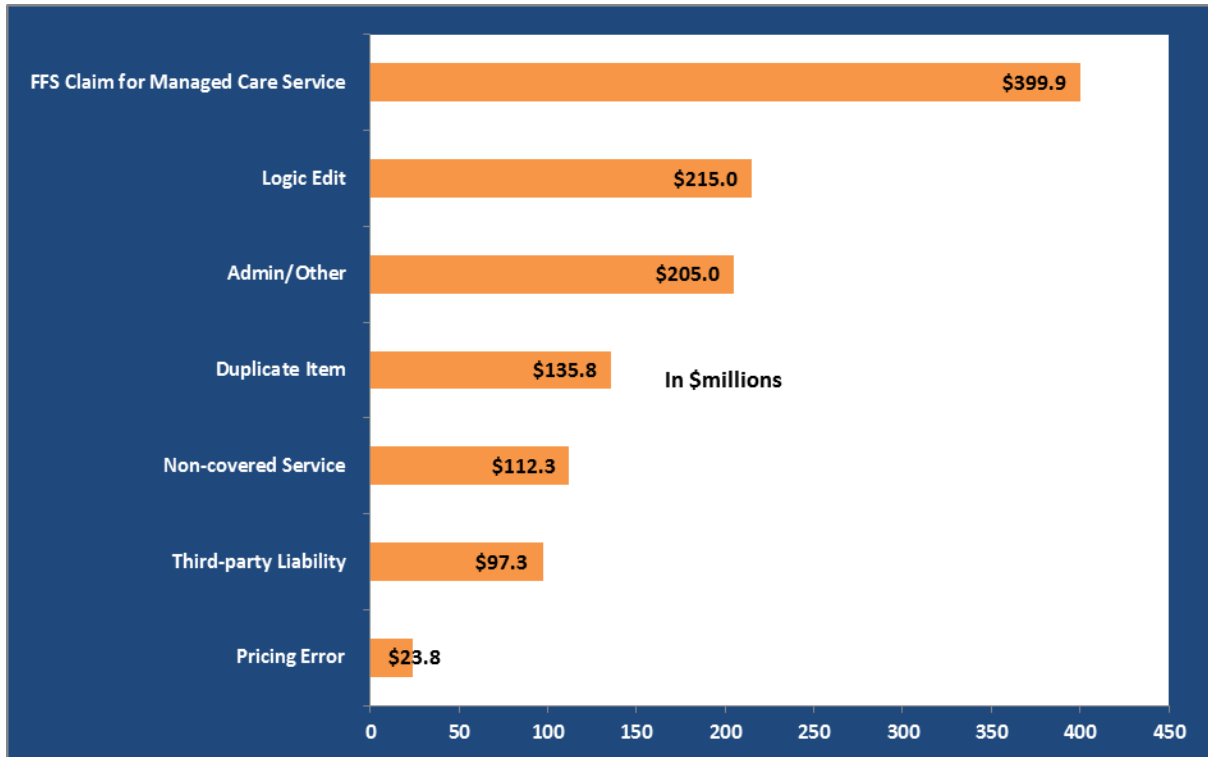


Figure T43. CHIP FFS Data Processing Errors with Highest Projected Average Costs per Error



CHIP Managed Care Component Payment Error Rate

Figure T44. CHIP Managed Care Cycle-Specific Component Payment Error Rates

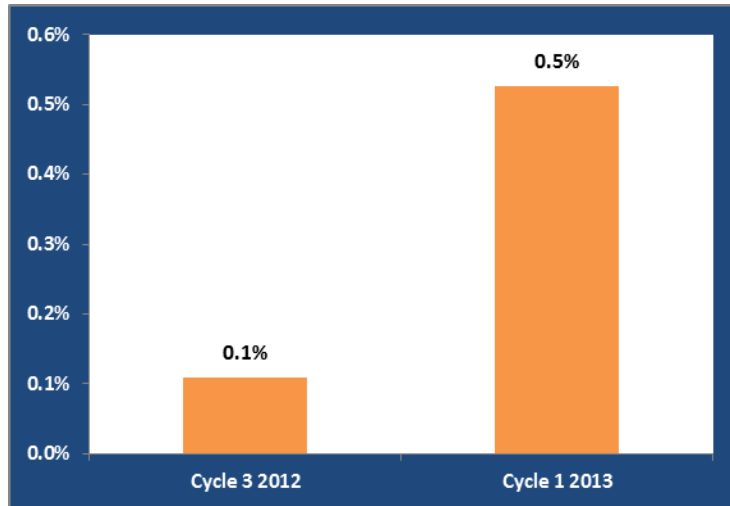


Table T17. CHIP Managed Care Payment Error Rates by State

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
National	116	\$3,904	\$1,536,062	0.2%
ST1	3	\$559	\$53,017	1.1%
ST2	2	\$725	\$69,148	0.5%
ST3	1	\$114	\$54,079	0.4%
ST4	2	\$562	\$159,113	0.4%
ST5	1	\$118	\$53,972	0.3%
ST6	1	\$327	\$47,164	0.3%
ST7	2	\$1,462	\$209,716	0.1%
ST8	104	\$36	\$31,831	0.1%
ST9	0	\$0	\$242,633	0.0%
ST10	0	\$0	\$77,540	0.0%
ST11	0	\$0	\$63,960	0.0%
ST12	0	\$0	\$56,280	0.0%
ST13	0	\$0	\$45,899	0.0%
ST14	0	\$0	\$43,631	0.0%
ST15	0	\$0	\$41,667	0.0%
ST16	0	\$0	\$41,643	0.0%
ST17	0	\$0	\$39,410	0.0%
ST18	0	\$0	\$30,297	0.0%

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
ST19	0	\$0	\$28,706	0.0%
ST20	0	\$0	\$27,337	0.0%
ST21	0	\$0	\$27,182	0.0%
ST22	0	\$0	\$26,683	0.0%
ST23	0	\$0	\$21,265	0.0%
ST24	0	\$0	\$20,766	0.0%
ST25	0	\$0	\$18,365	0.0%
ST26	0	\$0	\$4,759	0.0%

CHIP Managed Care Error Analysis

Table T18. CHIP Managed Care Data Processing Errors

Error Type	Sample Number of Errors		Projected Dollars in Error		Average Projected Cost per Error
	Number of Sample Errors	% of Total Number of Sample Errors	Projected Dollars in Error (\$millions)	% of Projected Dollars in Error	
Non-covered Service	10	8.6%	\$18.5	98.2%	\$424.6
Pricing Error	1	0.9%	\$0.2	1.2%	\$162.2
MC Payment Error	105	90.5%	\$0.1	0.6%	\$1.3
Total	116	100.0%	\$18.9	100.0%	
Note: Details do not always sum to the total due to rounding.					

Figure T45. Common Reasons for CHIP Managed Care Non-covered Service Errors

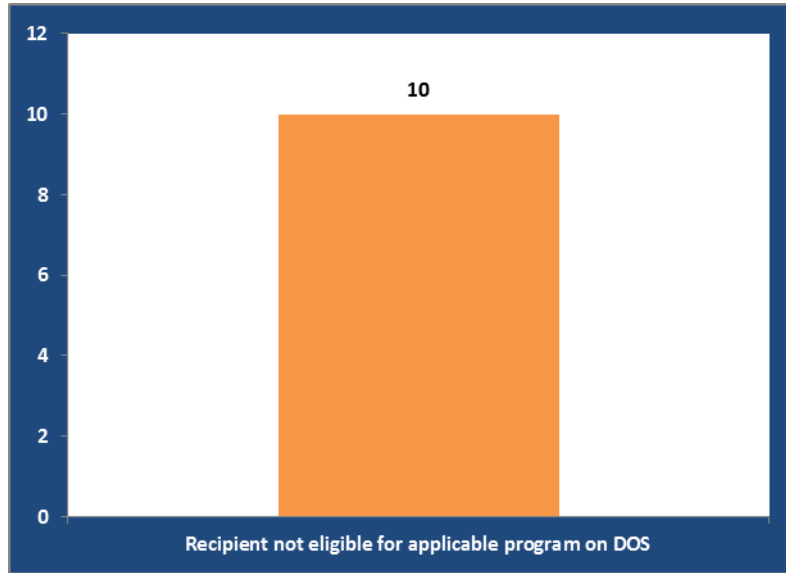


Figure T46. Common Reasons for CHIP Managed Care Pricing Errors and MC Payment Errors

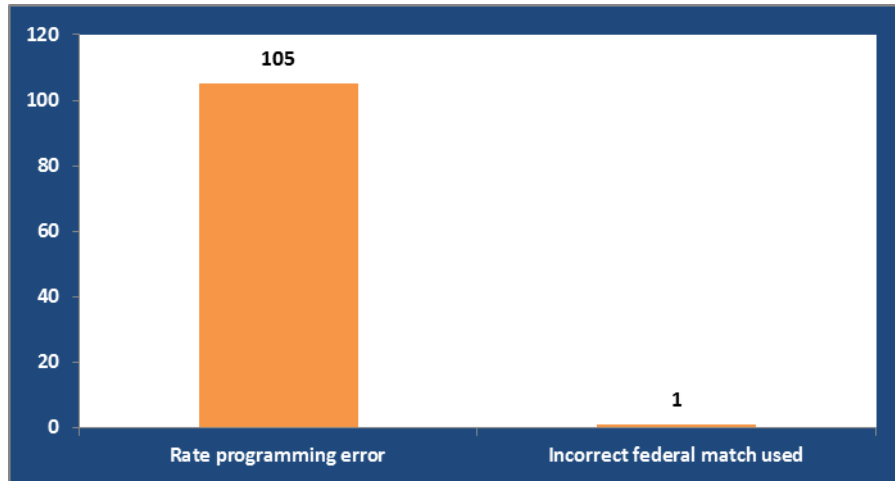
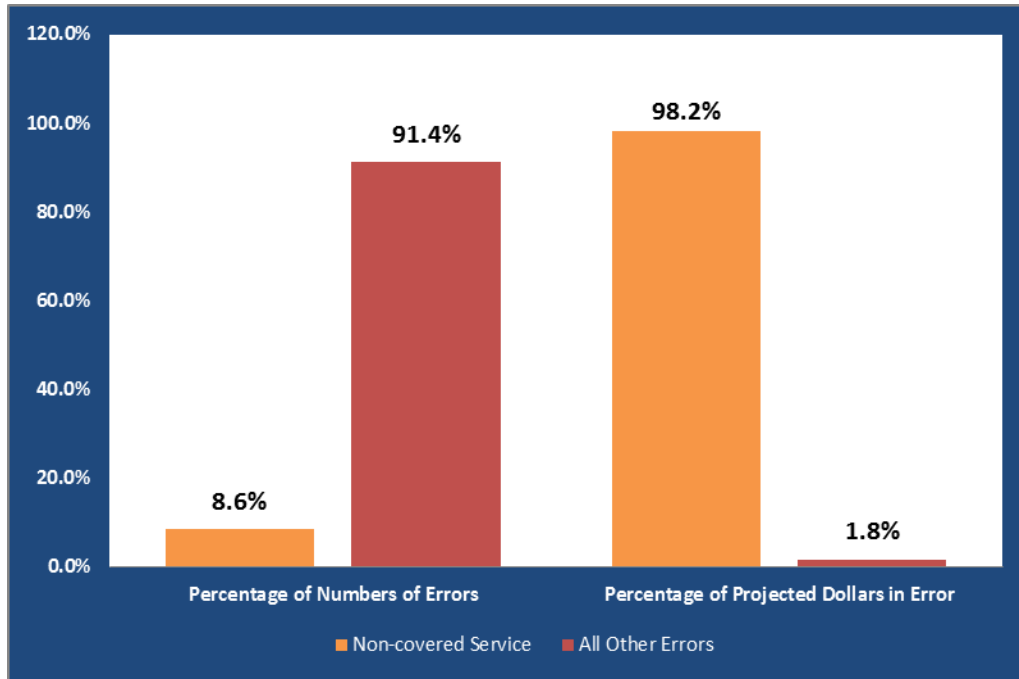


Figure T47. CHIP Managed Care "Non-covered Service" Compared to All Other Managed Care Errors



Note: Due to rounding, the sum may not equal 100%.

CHIP Eligibility Component Payment Error Analysis

Figure T48. CHIP Eligibility Cycle-Specific Component Payment Error Rates

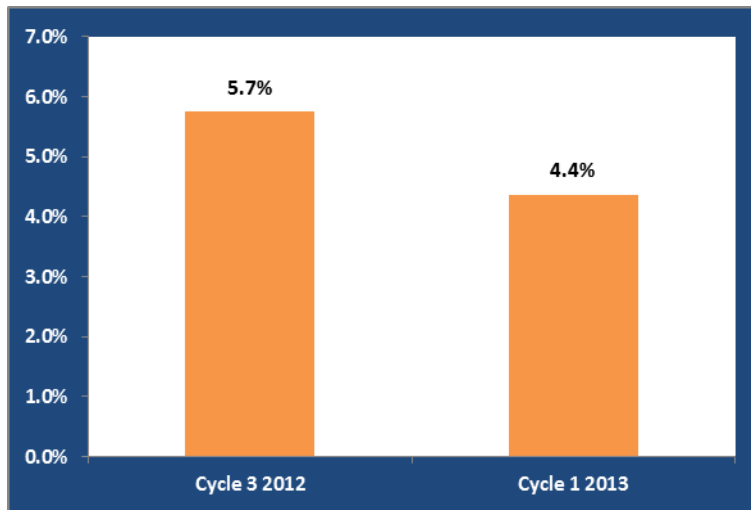


Table T19. CHIP Eligibility Payment Error Rates by State

State	Number of Sample Errors	Sample Dollars in Error	Sample Paid Amount	Error Rate
National	1,418	\$163,896	\$3,278,801	5.1%
ST1	240	\$24,056	\$77,071	30.9%
ST2	136	\$25,023	\$99,382	24.3%
ST3	140	\$7,708	\$64,057	12.0%
ST4	64	\$6,161	\$55,483	11.2%
ST5	56	\$8,485	\$80,418	10.6%
ST6	65	\$9,253	\$109,781	8.4%
ST7	45	\$5,021	\$62,878	8.0%
ST8	58	\$4,872	\$67,427	7.3%
ST9	40	\$6,856	\$95,796	6.8%
ST10	51	\$4,524	\$72,880	6.1%
ST11	32	\$2,706	\$44,528	6.1%
ST12	30	\$3,161	\$57,165	5.7%
ST13	73	\$3,894	\$50,853	5.1%
ST14	19	\$2,557	\$83,840	5.0%
ST15	38	\$5,955	\$131,673	4.5%
ST16	33	\$2,225	\$62,349	3.6%
ST17	23	\$2,578	\$62,559	3.2%
ST18	14	\$2,578	\$80,645	3.2%
ST19	17	\$11,800	\$392,908	3.0%
ST20	37	\$2,428	\$91,334	2.6%
ST21	22	\$1,624	\$64,770	2.5%
ST22	34	\$2,259	\$91,081	2.5%
ST23	15	\$1,602	\$65,468	2.4%
ST24	21	\$1,625	\$74,327	2.2%
ST25	17	\$4,635	\$137,650	2.0%
ST26	12	\$1,309	\$77,578	1.9%
ST27	13	\$1,697	\$105,353	1.6%
ST28	15	\$2,389	\$179,558	1.3%
ST29	19	\$885	\$84,104	1.0%
ST30	27	\$1,669	\$184,312	0.9%
ST31	1	\$228	\$115,034	0.5%
ST32	10	\$2,132	\$67,381	0.4%
ST33	1	\$3	\$97,996	0.0%
ST34	0	\$0	\$91,164	0.0%

CHIP Eligibility Error Analysis

Table T20. CHIP Eligibility Review Findings for Active Cases and Projected Dollars in Error

Findings	Number of Sample Cases with Payment Errors	Percentage of Total Number of Sample Cases with Payment Errors	Projected Dollars in Error (\$millions)
Not Eligible	1,074	75.7%	\$597.9
Undetermined	97	6.8%	\$31.3
Liability Understated	160	11.3%	\$14.4
Liability Overstated	70	4.9%	\$7.2
Eligible with Ineligible Services	12	0.8%	\$6.5
Managed Care Error, Eligible for Managed Care but Improperly Enrolled	5	0.4%	\$0.6
Managed Care Error, Ineligible for Managed Care	0	0.0%	\$0.0
Total	1,418	100.0%	\$657.9

Table T21. Number and Dollar Amount of CHIP Eligibility Errors for Active Cases

Error Type	Overpayments		Underpayments		Percentage of Total Errors	
	Number of Sample Payment Errors	Projected Dollars in Error (\$millions)	Number of Sample Payment Errors	Projected Dollars in Error (\$millions)	% of Total Number of Sample Payment Errors	% of Projected Dollars in Error
Not Eligible	1,074	\$597.9	0	\$0.0	75.7%	90.9%
Undetermined	97	\$31.3	0	\$0.0	6.8%	4.8%
Liability Understated	160	\$14.4	0	\$0.0	11.3%	2.2%
Liability Overstated	0	\$0.0	70	\$7.2	4.9%	1.1%
Eligible with Ineligible Services	12	\$6.5	0	\$0.0	0.8%	1.0%
Managed Care Error, Eligible for Managed Care but Improperly Enrolled	5	\$0.6	0	\$0.0	0.4%	0.1%
Managed Care Error, Ineligible for Managed Care	0	\$0.0	0	\$0.0	0.0%	0.0%
Total	1,348	\$650.7	70	\$7.2	100.0%	100.0%

Note: Details do not always sum to the total due to rounding.

Table T22. CHIP Eligibility Review Findings for Negative Cases

Stratum	Number of Sample Cases	Percentage of Sample Cases
Correct	6,703	96.5%
Improper Termination	149	2.1%
Improper Denial	91	1.3%
Total Negative Cases	6,943	100.0%

* Note: Due to rounding, the sum may not equal 100%.

Appendix 5: Medicaid and CHIP Review Methodology

Medicaid and CHIP FFS claims were subjected to data processing review and, if applicable, medical review. Medicaid and CHIP managed care payments were subjected only to data processing review. If an error was identified during medical review or data processing review, states were given the opportunity to participate in difference resolution and appeal to CMS. Medicaid and CHIP eligibility cases were reviewed by states.

Medical Review Methodology

From a state's quarterly sample selection, detailed information on each sampled claim was requested from the state and copies of the relevant medical records were requested from the providers. The medical records were used to perform medical reviews on the claims to validate whether the claim was paid correctly. Each claim was assessed to determine the following:

- Adherence to state guidelines and policies related to the service type;
- Completeness of medical record documentation to substantiate the claim;
- Medical necessity of the service provided;
- Validation that the service was provided as ordered and billed; and
- Claim was correctly coded.

A medical review error is a payment error that is determined from a review of the medical documentation submitted, the relevant state policies, and a comparison to the information presented on the claim. The medical reviews consisted of reviewing sampled FFS claims for the errors listed in Table S12.

Table S12. Medical Review Error Codes

Error Code	Error	Definition
MR01	No documentation	The provider did not respond to the request for records within the required timeframe.
MR02	Insufficient documentation	The provider did not return information requested or did not submit sufficient documentation for the reviewer to determine whether the claim should have been paid.
MR03	Procedure coding error	The provider performed a procedure but billed using an incorrect procedure code.
MR04	Diagnosis coding error	The provider billed using an incorrect diagnosis and /or DRG.
MR05	Unbundling	The provider billed for the separate components of a procedure code when only one inclusive procedure code should have been billed.
MR06	Number of unit(s) error	The provider billed for an incorrect number of units for a particular service provided.
MR07	Medically unnecessary service	The provider billed for a service determined to have been medically unnecessary based upon the information regarding the patient's condition in the medical record.
MR08	Policy violation	Either the provider billed and was paid for a service that was not in agreement with state policy, or the provider billed and was not paid for a service that, according to state policy, should have been paid.

Error Code	Error	Definition
MR09	Administrative/other	A payment error was discovered during a medical review but was not a MR01 – MR08. The specific nature of the error is recorded.

Data Processing Review Methodology

Data processing reviews were also conducted to validate that each sampled payment was processed correctly based on information found in the state’s claims processing system when it was adjudicated compared with the following:

- State specific policies and fee schedules in effect at the time of payment;
- Beneficiary enrollment; and
- Provider participation in the Medicaid program.

A data processing error is a payment error resulting in an overpayment or underpayment that could be avoided through the state’s Medicaid Management Information System (MMIS) or other payment system. Claims not processed through a state’s MMIS were subject to validation through a paper audit trail, state summary or other proof of payment. The data processing reviews consisted of reviewing the sampled claims for the errors listed in Table S13.

Table S13. Data Processing Error Codes

Error Code	Error	Definition
DP01	Duplicate item	An exact duplicate of the sampling unit was paid.
DP02	Non-covered service	State policies indicate that the service is not payable by Medicaid under the state plan or for the coverage category under which the person is eligible.
DP03	FFS claim for a managed care service	The beneficiary is enrolled in a managed care plan and the managed care plan should have covered the service rather than paid under FFS.
DP04	Third-party liability	A third-party insurer is liable for all or part of the payment.
DP05	Pricing error	Payment for the service does not correspond with the pricing schedule for that service.
DP06	Logic edit	A system edit was not in place based on policy or a system edit was in place but was not working correctly and the sampling unit was paid (e.g., incompatibility between gender and procedure, or ineligible beneficiary or provider).
DP07	Data entry error	Clerical error in the data entry of the sampling unit.
DP08	Rate cell error	The beneficiary was enrolled in managed care and payment was made, but for the wrong rate cell.
DP09	Managed care payment error	The beneficiary was enrolled in managed care, but was assigned the wrong payment amount.
DP10	Administrative/other	A payment error was discovered during a data processing review but the error was not a DP01 – DP09 error. The specific nature of the error is recorded.

Difference Resolution

If an error was identified that affected payment, the state was notified and given an opportunity to review the documentation associated with the payment and dispute the error finding. An independent difference resolution review was performed to consider the state's information and to make a final determination. If the state determined additional review was necessary, the state could then appeal the error finding to CMS.

Errors that were not challenged by the states or upheld following the difference resolution and appeal process were included in the payment error rate calculation. If a payment error was found in both the data processing review and medical review for a specific claim, the total error amount reported was adjusted to not exceed the total paid amount for the claim, unless the underpayment amount exceeded the original claim amount, such as in the case of zero-paid claims.

Eligibility Review Methodology

After the sample was selected for each sample month, state PERM review staff performed eligibility reviews on each sampled case from the active and negative universe. Active and negative cases are separately reviewed. Each active case was reviewed for eligibility as of the last state action. The eligibility reviews verify that the individual was eligible for the Medicaid program according to state and federal eligibility policies, not whether the state's policies comply with federal law or whether the caseworker acted appropriately on cases. Negative cases were reviewed to verify whether the beneficiary was denied or terminated from the programs correctly.

For each case sampled in the active case universe, claims data were collected for payments made on the behalf of the beneficiary for services received in the sample month and paid in that month and in the four subsequent months. These payments constitute the universe of payments affected by the eligibility review of the sampled cases. Because states perform the eligibility reviews, there is no difference resolution at the federal level for eligibility payment errors.

Upon reviewing a case to verify eligibility, states report their eligibility and payment findings based on the review finding codes in Table S14. Cases can be found eligible, not eligible, undetermined, or eligible but with a payment error (e.g., a portion of the total payments for a reviewed case can be improperly paid, while the rest of the payments were made correctly).

Table S14. Eligibility Review Finding Codes

Code	Review Finding	Definition
E	Eligible	An individual beneficiary meets the state's categorical and financial criteria for receipt of benefits under the Medicaid program.
EI	Eligible with ineligible services	An individual beneficiary meets the state's categorical and financial criteria for receipt of benefits under the Medicaid program but received services that were not covered under his/her benefit package.

Code	Review Finding	Definition
NE	Not eligible	An individual beneficiary is receiving benefits under the program but does not meet the state's categorical and financial criteria for the month eligibility is being verified.
U	Undetermined	A beneficiary case subject to a Medicaid eligibility determination under PERM about which a definitive determination could not be made.
L/O	Liability overstated	The beneficiary paid too much toward his/her liability amount or cost of institutional care and the state paid too little.
L/U	Liability understated	The beneficiary paid too little towards his/her liability amount or cost of institutional care and the state paid too much.
MCE1	Managed care error, ineligible for managed care	Upon verification of residency and program eligibility, the beneficiary is enrolled in managed care but is not eligible for managed care.
MCE2	Managed care error, eligible for managed care but improperly enrolled	Beneficiary is eligible for both the program and for managed care, but not enrolled in the correct managed care plan as of the month eligibility is being verified.

Undetermined cases are included in the error counts and improper payments. Findings of undetermined occur when, after due diligence, evidence cannot be obtained to make a definitive determination of eligibility on a case.

Claim Categories

Claim categories are listed in Table S15.

Table S15. Claim Categories

Claim Category Code	Claim Category Description
1	Inpatient Hospital
2	Psychiatric, Mental Health, and Behavioral Health Services
3	Nursing Facility, Intermediate Care Facilities (ICF)
4	ICF for the Mentally Retarded (ICF/MR) and ICF/Group Homes
5	Outpatient Hospital Services and Clinics
6	Physicians and Other Licensed Practitioner Services
7	Dental and Other Oral Surgery Services
8	Prescribed Drugs
9	Home Health Services
10	Personal Support Services
11	Hospice Services
12	Therapies, Hearing and Rehabilitation Services
13	Habilitation and Waiver Programs
14	Laboratory, X-ray and Imaging Services
15	Vision: Ophthalmology, Optometry and Optical Services

Claim Category Code	Claim Category Description
16	Durable Medical Equipment (DME) and supplies, Prosthetic/Orthopedic devices and Environmental Modifications
17	Transportation and Accommodations
18	Denied Claims
19	Crossover Claims
30	Capitated Care/Fixed Payments
50	Managed Care
99	Unknown

Appendix 6: Statistical Sampling and Formulae

The sampling process for PERM follows a stratified two-stage design. First, all 50 states plus the District of Columbia were stratified into three strata of 17 states each based on historical total Medicaid FFS expenditures. The top strata consisting of the 17 states with the greatest expenditures were further divided into two strata: a nine state stratum of the largest expenditure states and a stratum with the remaining eight states. The states from each state stratum were selected by random sampling. States were selected to be reviewed on a three year rotation such that 17 different states would be reviewed each year and all states would be reviewed over a three year time span. This sampling of states constitutes the first stage of the sample. Within each sampled state the universe of claims was then further stratified. The sampled claims were subjected to medical and data processing reviews, as appropriate, to identify proper and improper payments. As a result of the reviews, state level error rates were calculated.

The state level error rate is estimated by this equation as:

$$\hat{R}_i = \frac{\hat{t}_{e_i}}{\hat{t}_{p_i}}$$

In the equation, \hat{R}_i is the estimated error rate for state i; \hat{t}_{e_i} is the estimated dollars in error projected for state i and \hat{t}_{p_i} is the estimated total payments for state i. Then,

$$\hat{t}_{e_i} = \sum_{j=1}^J \frac{M_{i,j}}{m_{i,j}} E_{i,j}$$

and

$$\hat{t}_{p_i} = \sum_{j=1}^J \frac{M_{i,j}}{m_{i,j}} P_{i,j}$$

In these equations, $M_{i,j}$ is the number of items in the universe for state i in strata j and $m_{i,j}$ is the number of items in the sample for state I in stratum j. The ratio of items in the universe to items in the sample (i.e., the weight for that stratum, quarter, and state) is the inverse of the sampling frequency. Dollars in error in the sample for stratum j and state i, denoted $E_{i,j}$, is weighted by the inverse of the sampling frequency to estimate dollars in error in the universe for that stratum. For example, if there are 10,000 items in the universe in stratum j, and the sample size in j is 200 items, the weight for the dollars in error in the stratum j sample is 50 (10,000/200). The estimated total dollars in error are then added across each of the J strata to obtain total dollars in error for the universe. Total payments are estimated in the same way, where $P_{i,j}$ is the total payments in the sample in stratum j for state i.

Cycle-Specific National Level Statistics

To go from the error rates for individual states to a cycle-specific national error rate, two steps are taken. First, states were divided into three (and then four) strata based on the size of the state, as determined by FFS expenditures at the outset of PERM. For each of the four state strata, there

were some states that were sampled, and some that were not. In this step, the error rate for the entire state stratum is projected from the error rates of the states that were sampled in the stratum. The method is analogous to the method for the estimated state level error rates.

Let h represent the state strata, of which there are four, and n_h be the number of states sampled from stratum h . Then, the error rate for stratum h is given by:

$$\hat{R}_h = \frac{\hat{t}_{e_h}}{\hat{t}_{p_h}}$$

Where \hat{t}_{e_h} is the total dollars in error projected for all the states (the universe) in stratum h , and \hat{t}_{p_h} is the total projected payments for all of the states (the universe) in stratum h .

Total dollars in error for all the states in stratum h is projected by weighting the total projected dollars in error from the sampled states, which was calculated above for each state in the sample, by the inverse of the sampling frequency:

$$\hat{t}_{e_h} = \frac{N_h}{n_h} \sum_{i=1}^{n_h} \hat{t}_{e_{hi}}$$

In this equation N_h is the number of states in strata h , and n_h is the number of states in the sample that are in state stratum h . For example, if there are 17 states in stratum h , and the sample included 5 of those states, the total projected dollars in error for the universe of states in stratum h is the sum of the total projected dollars in error of each of the five states in h , weighted or multiplied by (17/5).

The analogous equation is used to project total payments in the stratum h universe:

$$\hat{t}_{p_h} = \frac{N_h}{n_h} \sum_{i=1}^{n_h} \hat{t}_{p_{hi}}$$

The error rate, for stratum h , is then the ratio of projected dollars in error to projected payments for that stratum, as defined above.

The final step in calculating the cycle-specific national error rate is to apply the state stratum rates to data on actual expenditures for the period of the estimate. The estimated cycle-specific national error rate is calculated as:

$$\hat{R} = \frac{\sum_{h=1}^4 \hat{t}_{p_h} \hat{R}_h}{t_p}$$

where:

\hat{t}_{p_h} = total universe payments for state stratum h .

t_p = total universe payment.

\hat{R}_h =estimated error rate for stratum h.

Note that there is no “^” over the state strata and cycle-specific national payment data. This means that they are not estimated from the sample. These are actual payment expenditures. Another way of considering the equation for the cycle-specific national error rate is to note that:

$$\frac{t_{ph}}{t_p} = \text{share of cycle-specific national expenditures represented by states in stratum h.}$$

Therefore, the cycle-specific national error rate has an intuitive interpretation as a weighted sum of the estimated state stratum error rates, where the weights are shares of expenditures.

Combining Claims Review Error Rates across Program Components

Combining the claims review payment error rates, (i.e., combining the FFS and managed care payment error rates for Medicaid) is relatively straightforward because the population payments are known from federal financial management reports. Note that CMS does not utilize true population payments in calculating state rates for each program component. The reason for this is two-fold. First, the combined ratio estimator used allows for correction in possible bias if the sampled average payment amount differs from the universe average payment amount. However, if CMS utilized a combined ratio estimator to combine the program components at the state level, one program component that realized high sample average payment amount compared to the universe average would have too much influence in projections. For this reason, combining program component rates using the shares of expenditures as weights reduces the variance in the estimates from this source. Furthermore, following this method allows the same method for combining program component claims review rates at both the state and cycle-specific national level.

The following equations utilize the estimated state or cycle-specific national error rates calculated in the previous two sections.

Let the overall claims review error rate for Medicaid can be defined as:

$$\hat{R}_C = \frac{t_{pFFS} \hat{R}_{FFS} + t_{pMC} \hat{R}_{MC}}{t_p}$$

where:

$$t_p = t_{pFFS} + t_{pMC} .$$

In this equation, \hat{R} is the estimated error rate for FFS, managed care or combined (C), and t represents total payments for FFS, managed care, or the total, depending upon the subscript.

Payment Error Rate Formula

Sampled claims or cases are subject to reviews, and a payment error rate is calculated based on those reviews. The payment error rate is an estimate of the proportion of improper payments made in the Medicaid program to the total payments made.

The cycle-specific national error rate was computed using a separate ratio estimator, which combines the error rates from each state stratum using the federally reported Medicaid expenditures for those strata. The error rates for the state strata were calculated using a combined ratio estimator that accounts for the two sampling stages in the design. This method projects the improper payments and total payments using the sampling frequency of units from the state as well as the sampling frequency of states from the state's stratum. State level error rates were computed using a combined ratio estimator as well, although two stage sampling adjustments are not needed. State and cycle-specific national rates are calculated for each program component—FFS, managed care and eligibility—and are also combined into an overall rate, representing the total error rates for the program at the state and at the cycle-specific national levels.

For the calculation of state level statistics, the error rate estimator is a combined ratio estimator. The numerator consists of estimated dollars in error in the universe, and the denominator is estimated total payments, both projected from the sample on the basis of the sampling weights (i.e., the inverses of the sampling frequencies). The sample is drawn from a universe that is divided into the strata relevant to that universe, as described above. The sample dollars in error and sample payments are weighted by the inverse of the strata sampling frequencies to estimate universe values. The sampling frequencies, which are the rates at which items were sampled, vary by stratum.

To calculate the cycle-specific national error rate based on the individual state error rates, two steps are taken. First, states are divided into four strata based on the size of the states' Medicaid FFS programs at the onset of the PERM program. For each of the strata, there are some states that were sampled, and some that were not. In this step, the error rate for the entire state stratum is projected from the error rates of the states that are sampled in the stratum. The method is analogous to the method for the estimated state level error rates. Then, the cycle-specific national rate is estimated by combining rates across the state strata and is weighted by the proportion of total expenditures represented by each state stratum.

Eligibility Error Rate Formula

Three strata were defined for active cases: new applications, redeterminations, and all other cases. For cycle 1 states this year, between 216 and 523 cases were sampled from the active case universe, depending upon the state, its prior active eligibility payment error rate, margin of error, and state preference for changing sample sizes or remaining consistent with previous cycles. For the negative cases, considered as an additional stratum, between 132 and 350 cases were sampled per state, again, depending upon the criteria just listed for the active case strata but applied to the negative cases. Annual sample sizes were evenly apportioned throughout the 12 reporting months for both active and negative cases and strata. For MEQC-option states, there needed to be at least 42 PERM-eligible active cases per month that were stratified after sampling into the three active case strata.

Claims data were associated with each of the cases. The dollar value of eligibility errors assessed was based on the implications of the eligibility review for the validity of the claims associated with each case. For each state, the results of the reviews for each stratum were projected to the universe based on the sampling frequencies for each stratum in a manner analogous to that described above for the FFS and managed care errors.

The sample sizes for each state level component of PERM (i.e., FFS, managed care, active eligibility payment, and negative eligibility case error rates) were designed to achieve precision in the component error rate estimate at the state level of +/- 3 percentage points with a 95 percent confidence level, under the assumption that almost all of the underlying component error rates would be less than five percent, with managed care often less than three percent, and no state eligibility error rate exceeding about 15%.

A cycle-specific national eligibility error rate was calculated using the same method employed in the FFS and managed care calculations. It is based on calculating an eligibility error rate for each of the four state strata, and combining these rates into an overall cycle-specific national rate based on the share of expenditures for the program in each stratum.

Combining Claims Error Rates and the Eligibility Error Rate

After combining the FFS and managed care components into one overall claims payment error rate for Medicaid at the state and cycle-specific national levels, these combined claims and managed care payment error rates are then combined with the respective eligibility payment error rates. The combining of the claims payment error rate and the eligibility payment error rate is referred to as the combined error rate. The following procedure is followed at the state and cycle-specific national levels. That is, the claims payment error rates are combined at the state level and combined in a separate instance at the cycle-specific national level. The estimated combined payment error rate is given by:

$$\hat{R}_T = \hat{R}_C + \hat{R}_E - \hat{R}_E \hat{R}_C$$

where:

\hat{R}_T denotes the estimated Total, or Combined Error Rate.

\hat{R}_C denotes the estimated Claims Error Rate.

\hat{R}_E denotes the estimated Eligibility Error Rate.

Rolling National Error Rates

In 2013, the rolling national error rate for Medicaid is calculated from data sampled in 2011, 2012, and 2013. However, since CHIP was not sampled in 2011, the rolling national error rate for CHIP is calculated from data sampled in 2012 and 2013. Both national error rates are calculated in the same manner. Each of the rolling error rates (i.e., total program, FFS, MC, and Eligibility) is calculated with the same methodology.

Data from 2011, 2012, and 2013 (2012 and 2013 for CHIP) are combined and weighted by the total applicable expenditures for 2013. The formula for the rolling error rate is as follows:

$$\hat{R}_T = \frac{\sum_{i=1}^s t_{p_i} \hat{R}_i}{t_p}$$

where:

\hat{R}_T = rolling error rate.

t_{p_i} = total payments for state i.

\hat{R}_i = estimated error rate for state i.

s = total number of states sampled (51 for Medicaid, 34 for CHIP).

t_p = total universe payment.